Wet.land, LLC
Jennifer Marriott, PWS
15803 Bear Creek Parkway
Unit E513
Redmond, WA 98052

15 April 2022

Doug Yormick
City of Issaquah
Community Planning and Development

PROJECT: Hyla Crossing Pumped Stormwater Discharge Project, Issaquah, Washington

SUBJECT: Response to Comments

Dear Doug,

Comments to this Project from The Watershed Company (TWC) were provided to us on 20 August 2021. The TWC letter is dated 10 June 2021. Comments as presented by TWC are below in **bold** font, while our responses follow in a normal font. The comments are separated by Section as provided in the TWC letter starting with the *Recommendations* section, followed by the more detailed comments regarding *Wetland Classification* and *On-site Restoration and Mitigation*. This response has been updated to reflect the most recent site and mitigation plans as of 15 April 2022.

RECOMMENDATIONS

1. **Prepare the required wetland rating form figures for Wetland E.**

   Wetland rating forms have been prepared, and are attached with a revised wetland rating sheet for Wetland E only (**Attachment 1**). The wetland ratings have not changed for the other wetlands within the Project Area as the other wetlands are outside of the project limits for the proposed pipeline.

2. **Address the wetland rating inconsistencies discussed under the Wetland Classification section above; revise the wetland classification accordingly.**

   The rating form for Wetland E has been revised, attached, with rating figures. However, note that many of the below rating inconsistencies do not apply to the revised rating as the wetland had been rated using the wrong HGM classification.

3. **Revise the Plant Density Tables and Plant Schedule on Sheet W3.3 to be consistent with each other. Verify the correct plant quantities based on the proposed plant spacing.**

   The Plant Density Tables and Plant Schedule on Sheet W3.3 have been resolved to be consistent with each other. Plant quantities for each species in each zone were also checked and updated as needed. See the revised Mitigation Plan provided as **Attachment 2**.

4. **Clarify the Plant Communities Legend on Sheet W3.3 to accurately depict where the Zone 4 willow stakes will be placed.**

   The proposed stormwater line transects the Volunteer Restoration area where willow stakes were previously planted by volunteers for the City at approximately 6' o.c. Note that Zone 4 is the Volunteer Restoration Area that occurs outside of the construction corridor. Those portions of the Volunteer Restoration Area that occur within the construction corridor have been included within Zone 1. The displaced willow stake replacement plantings will now be planted within Zone 4. The Volunteer Restoration Area (Zone 4) was found to have many large gaps that could benefit from additional (replacement) planting. The exact locations of these gaps were not surveyed as agreed by the City. A rough diagram was provided by the Parks Department to be used as a baseline in the attached Mitigation Plan and has been taken into account with the mitigation design. The 684 replacement willow stakes will be planted in the gaps within Zone 4 with the exact locations determined by a professional on site at the time of planting.

5. **Confirm that all plant species installed beneath the power lines will not exceed the maximum allowed height per the utility agency.**

   The planting plan has been revised to remove Scouler's willow from the enhancement area where overhead utility lines hang . All plants directly under the overhead lines are shrubs; vine maples and hooker's willow maturing out at heights of 25 feet will be located beyond the overhead lines.

6. **Provide performance standards for all on-site restoration/enhancement areas.**

   Performance standards for the onsite mitigation will be as follows:

   Objective A: Restore Palustrine Emergent/Scrub-Shrub Wetland

   Performance Standard A1: Percent survival of all installed species must be at least 100% at the end of Year 1 (per contactor warranty), and at least 85% by the end of Year 3.

   Performance Standard A2: At least 5 species of desirable native woody plant species will be present in the wetland and buffer restoration areas. Species may be comprised of both planted and naturally colonized vegetation.

Performance Standard A3: Total percent aerial woody plant coverage must be at least 35% by Year 4, 50% by Year 5, 55% by Year 7, and 65% by Year 10.

Performance Standard A4: Indicators of wetland hydrology will be present between March 1st – May 15th, during the spring monitoring period. This Mitigation Site is expected to reflect soil saturation in the upper 12 inches of the soil surface.

Objective B: Restore and Enhance Buffer

Performance Standard B1: Percent survival of all installed species must be at least 100% at the end of Year 1 (per contactor warranty), and at least 85% at the end of Year 3.

Performance Standard B2: At least 5 species of desirable native woody plant species will be present in the wetland and buffer restoration areas. Species may be comprised of both planted and naturally colonized vegetation.

Performance Standard B3: Total percent aerial woody plant coverage must be at least 35% by Year 4, 50% by Year 5, 55% by Year 7, and 65% by Year 10.

Objective C: Remove and control invasive plants to less than 10% cover in mitigation areas

Performance Standard C1: After construction and throughout the 10-year monitoring period, areal coverage by non-native invasive plant species shall be maintained at 10% or less throughout the mitigation site. These standards apply to ditch, riparian, and upland buffer areas combined. These species include, but are not limited to: Scot's broom, Himalayan and evergreen blackberry, purple loosestrife, hedge bindweed, and bittersweet nightshade.

Performance Standard C2: Per USACE requirements, after construction and throughout the monitoring period, non-native invasive knotweed species (such as *Polygonum cuspidatum, P. polystachyum, P. sachalinense, and P. bohemicum*) will be eradicated throughout the mitigation areas (including buffer areas) for a total cover of 0%.

7. **Provide a contingency plan for the on-site mitigation.**

Chapter 11 of the Critical Areas Report prepared by Talasaea Consultants, dated 21 May 2021 (as revised 15 April 2022), outlines the Contingency Plan for the mitigation onsite. A separate document has not been prepared. The text of Chapter 11 of the CAR is below:

> *Regular maintenance reviews will be performed according to the schedule presented in Table 4 to address any conditions that could jeopardize the success of the mitigation project. Following maintenance reviews by the biologist or ecologist, required maintenance on the site will be implemented within ten (10) business days of submission of a maintenance memo to the maintenance contractor and permittee.*
>
> *Established performance standards for the project will be compared to the yearly monitoring results to judge the success of the mitigation. If during the course of the monitoring period, there appears to be a significant problem with achieving the performance standards, the permittee shall work with the City and other permitting agencies to develop a Contingency Plan in order to get the project back into compliance with the*

performance standards. Contingency plans can include, but are not limited to, the following actions: additional plant installation, erosion control, bank stabilization, modifications to hydrology, and plant substitutions of type, size, quantity, and/or location. If required, a Contingency Plan shall be submitted to the City by December 31st of any year when deficiencies are discovered.

The following list includes examples of maintenance (M) and contingency (C) actions that may be implemented over the duration of the monitoring period. This list is not intended to be exhaustive, and other actions may be implemented as deemed necessary.

- *During year one, replace all dead woody plant material (M).*
- *The irrigation system shall be programmed to provide 1/2-inch of water two times per week (one cycle with two start times per week or every three days) between June 15 –October 15 during the first two years after installation, and for the first two years after any replacement plantings (C & M).*
- *Replace dead plants with the same species or a substitute that meets mitigation plan goals and objectives, subject to Talasaea and agency approval (C).*
- *Re-plant area after the reason for failure has been identified (e.g., moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, etc.) (C).*
- *After consulting with City staff and other permitting agencies, minor excavations, if deemed to be more beneficial to the existing conditions than currently exists, will be made to correct surface drainage patterns (C).*
- *Remove/control weedy or exotic invasive plants (e.g., Scotch broom, reed canarygrass, Himalayan blackberry, purple loosestrife, Japanese knotweed, etc.) by manual or chemical means approved by permitting agencies. Use of herbicides or pesticides within the mitigation area would only be implemented if other measures failed or were considered unlikely to be successful and would require prior agency approval. All non-native vegetation must be removed and disposed of off-site. (C & M).*
- *Weed all trees and shrubs to the dripline and provide 3-inch deep mulch rings 24 inches in diameter for shrubs and 36 inches in diameter for trees (M).*
- *Remove trash and other debris from the mitigation areas twice a year (M).*
- *Selectively prune woody plants at the direction of Talasaea Consultants to meet the mitigation plan's goal and objectives (e.g., thinning and removal of dead or diseased portions of trees/shrubs) (M).*
- *Repair or replace damaged structures including signs and fencing (M).*

8. **Prepare a bond quantity worksheet in accordance with IMC 18.10.810 and Development Agreement Appendix J 13.0.**

   A bond quantity worksheet has been prepared and is attached (**Attachment 3**).

9. **Provide additional buffer areas for the maintenance access point within the Wetland E buffer.**

   This is a linear project whose project area is defined only by the corridor through which the new pipe will be installed. The Applicant does not own the property on which Wetland E occurs nor do they own any adjacent properties where the addition of buffer would be possible. Buffer replacement adjacent to the existing buffer is not possible around this Project Area given the constraints of the site. The buffer is already heavily impacted

by existing public roads and infrastructure. The permanent buffer impact resulting from the maintenance access will be added to the credits purchased from the Keller Farm Mitigation Bank as there is no other alternative available for buffer mitigation beyond what is already proposed.

Accounting for the wetland rating revisions above, total credits purchased will now be as follows – see Table 1 below. This includes a purchase of buffer credits for those areas of buffer that cannot be replaced in the field due to the existing constraints that the Applicant has no control over. Note that this table has been updated to also include the new rating of the wetland. Mitigation ratios for Category 1 wetlands are typically between 1.5 or 2:1, variable, and this value will be determined at a later date once discussions with the USACE proceed further in conjunction with the mitigation bank manager to finalize which ratio is determined to be most appropriate given the physical characteristics of this wetland and lack of any special habitats.

Table 1. *Summary of Credits to be Purchased from Keller Farm Mitigation Bank*

Critical Area ID	Type of Impact	Area of Impact (square feet)	Mitigation Bank Credit to Impact Ratio	Wetland Credits Purchased	Buffer Credits Purchased
Wetland E – Outfall	Category I Wetland	315	1.5:1 or 2:1 (TBD)	473 or 630	
Wetland E- Maintenance Access	Category I Wetland	490	1.5:1 or 2:1 (TBD)	735 or 980	
Total Wetland Impacts		***805***	***1.5:1 or 2:1 (TBD)***	***1,208 or 1,610***	
Wetland E Buffer	*Critical Area Buffer*	*244*	*0.3:1*		***73.2***

10. **Provide additional buffer or mitigation for the proposed trail in the Tibbetts Creek buffer.**

No additional buffer replacement or mitigation will be provided for the proposed trail within the Tibbetts Creek buffer because this trail is designed and located consistent with the DA. See response below for Recommendation #11 for more details.

11. **Remove the proposed trail from the Northern Enhancement Area square footage calculations. Additional buffer restoration may be required to maintain consistency with the Development Agreement Appendix J 7.0.B.1.b.3.**

Appendix B (Section 4.2) of the DA clearly outlines *Critical Area Trail* as one of the targeted pedestrian-oriented types of circulation required as part of the greater Hyla Crossing development. Section 4.2.1 of Appendix B notes that *Critical Area Trails are non-motorized trails used in critical area buffers*. While this section does not specifically locate where these critical area trails should be, this section of the DA clearly provides for these trails to occur within critical area buffers.

Additionally, Section 5.4 of Appendix B of the DA discusses the *Tibbetts Creek Trail Guidelines*. These guidelines require that the Hyla Crossing project broadly design "at least a portion of the Greenway trail as a

Critical Area Trail." There are also notes that where this trail occurs within a Critical Area, the trail should reflect the character of that adjacent use, such as incorporating native plants and natural materials into the trail design.

Section 3.0 of Appendix D *Community Spaces* clearly identifies the *Tibbetts Creek Trail* as a required community space that will parallel Tibbetts Creek and allow pedestrian and bicycle access through the Hyla Crossing neighborhood. Exhibit D-2 identified the proposed alignment of the Tibbetts Creek Trail (**Attachment 4**).

Section 5.1 of Appendix E *Circulation Standards* outlines the restrictions of the Critical Areas Trail, including corridor dimensions (**Attachment 5**). Critical Area Trails are expected to be 13 feet in width which includes a five (5) foot sidewalk with four (4) feet of landscaping on either side. The adjacent landscaping to the main Critical Area Trail is intended to be compatible with the native vegetation presumed to be in the adjacent buffer.

The proposed trail at the outer edge of the Tibbetts Creek buffer restoration is consistent with the DA that specifies that some trails are required to be located within the critical areas buffers as part of the commitment to expanded pedestrian circulation around and through the Hyla Crossing neighborhood and as referenced by the City's parks and open space strategic plan for circulation. The DA clearly identified this segment of trail along Tibbetts Creek. Additional buffer restoration is not proposed to compensate for buffer contained within this pedestrian trail.

12. **Note that the project as designed will require a shoreline variance.**

    Noted. A request for a shoreline variance has already been submitted and is currently under review by the City of Issaquah. Please note that the same critical areas report was submitted for the shoreline variance as was provided for the ASDP review. <u>These revised documents responding to TWC recommendations should be used for the shoreline variance as well since the document revisions pertain to both the ASDP and shoreline variance applications.</u>

Wetland Classification

Note on HGM classification of Wetland E: This wetland was previously rated as a depressional wetland because there were multiple HGM classes present. After further review, the wetland is dominated by lake fringe and slope characteristics, rather than depressional characteristics. The outlet is lower in elevation than either the center or upper limits of this wetland, and no pockets exist where more than a few inches of water can pool except where direct interaction with the lake occurs. Based on these characteristics, a lake fringe & slope HGM classes for this wetland rating seem more accurate. The rating sheet notes that where a wetland has both lake fringe and slope wetland components, a lake fringe rating is appropriate. With that in mind – the questions below have been adjusted accordingly.

1. **Question D1.2 The soil 2 inches below the surface is true clay or organic: This question was answered "No." NRCS soil mapping indicates that a substantial portion of the Wetland E unit contains Shalcar muck, a true organic soil. Per the Rating System guidance: "If the unit is found within an area that is mapped as an organic or clay soil by the National Resource Conservation Service (NRCS) on their county soil maps, consider the unit to have clay or organic soils." This question should be answered "Yes," and four points should be allocated.**

   This question is no longer applicable to the new wetland rating.

2. **Question D1.4 The area that is ponded for at least 2 months: This question was answered "Area seasonally ponded is > ¼ the total area." The required figure documenting Talasaea's conclusion was not provided. However, per the National Wetlands Inventory, more than ½ of Wetland E is mapped as seasonally flooded. Absent evidence to the contrary, this question should be answered "Area seasonally ponded is > ½ the total area," and four points should be allocated.**

   This question is no longer applicable.

3. **Questions D4.3 and D5.3 cannot be reviewed without the required rating form figure depicting the contributing basin identified for the rating.**

   This question is no longer applicable.

4. **Question H1.1 Structure of plant community: This question was answered with emergent, forested, and forested with three out of five strata Cowardin plant communities. However, there is a substantial portion (meeting minimum size thresholds) of the wetland unit that extends into Lake Washington and supports an aquatic bed community. This community is evident in aerial photos from multiple years (2013 iMap and 2007, 2009, 2012, 2014, 2016 Google Earth). "Aquatic bed" should be added to the Cowardin classifications, and four points should be allocated.**

   This was an oversight and aquatic bed should definitely be included as a plant community. This change has been made. However, only 2 additional points were added since 2 points were already given for the three (3) plant communities already noted, for four (4) points in total for this question – not four (4) additional points.

5. **Question H1.2 Check the types of water regimes (hydroperiods) present within the wetland: This question was answered "occasionally flooded, saturated only, permanently flowing stream in or adjacent the wetland, and lake-fringe wetland." Portions of the wetland unit are lake-fringe (the unit is rated as a depression). However, the lake-fringe option is specific to units being rated as a lake-fringe hydrogeomorphic class. The lake-fringe area within Wetland A should be considered "permanently flooded." This correction does not affect the points allocated for the question.**

   No changes have been made to the rating sheet. This particular rating sheet was in draft form, as apparent by the side notations and items in () on the rating sheet. The HGM class revision changing this rating to a lake fringe rating means that hydroperiods remain as they are, however, the math needs to be corrected to accurately count the 2 points for the lake fringe wetland. Therefore, this question gets four (4) points in total, rather than the three (3) previous.

6. **H1.4 Interspersion of habitats: This question was answered "moderate." However, the wetland unit contains forested, emergent, aquatic bed, and open water (lake and stream) components. Per the rating form, wetlands with four or more habitat types are automatically considered "high" interspersion. Four points should be allocated to this question.**

   We agree that this should be high. However, a high interspersion only allocates three (3) points, not four (4). This change has been reflected for three (3) instead of the previous two (2).

7. **Questions H2.1, H2.2, and H2.3 cannot be reviewed without the required rating form figure and area percentage calculations provided.**

   See attached figure. The only effective change is that high intensity land use is not more than half of the polygon once the lake is accounted for appropriately.

On-Site Restoration and Enhancement

1. **The "Plant Density Tables" on Mitigation Plan Sheet W3.3 do not align with the plant quantities in the "Plant Schedule" on Sheet W3.3.**
   a. **Zone 1 table depicts 5,507 groundcover plantings, but the Zone 1 plant schedule depicts zero groundcover plantings. The Zone 1 planting area is identified as 22,027 square feet. At four feet on-center, as proposed, this would equate to approximately 1,600 groundcover plantings, rather than 5,507.**

      Zone 1 is completely within Wetland E and is currently consumed by reed canary grass and is partially within the volunteer restoration area where willow stakes appear to have been planted at 6 feet on center. In response to preventing the consumption of re-established construction areas by reed canary grass, and maintaining clear access to accommodate any potential truck or maintenance access needed to the outfall, Talasaea proposes seeding the entire zone with a native wetland grass mix in efforts to establish 100% coverage and outcompete any invasion of reed canary grass. While the Planting Density Tables specify "groundcover," at this location and elsewhere as noted underneath the Planting Density Tables, groundcover is also used to reference the proposed native seed mixes rather than individually planted groundcover plants. Zone 1 will be seeded at a rate of 20-25 pounds per acre.

   b. **Zone 2 table depicts 8,448 groundcover plantings, but the Zone 2 plant schedule depicts zero groundcover plantings. The Zone 2 planting area is identified as 33,792 square feet. At four feet on-center, as proposed, this would equate to approximately 2,450 groundcover plantings, rather than 8,448. It is also unclear what the qualifier "(50% coverage)" is meant to clarify in the Zone 2 table for groundcovers, as the proposed groundcover quantities are more than 3x what would be required for four-foot spacing.**

      Zone 2 area is indicative of scrub shrub and upland meadow vegetation in a wetland buffer. It covers the maintenance access entrance and the area between NW Sammamish Road and the associated drainage

ditch. The qualifier '50% coverage' is for accommodation of access for maintenance vehicles. For city maintenance access to the roadside ditch and the necessity for accommodating any potential access to the outfall by truck or other machinery, any proposed vegetation cannot be so tall or woody as to obstruct maintenance access. Talasaea proposes seeding the entire zone with native wetland grass mix as groundcover in efforts to establish 100% coverage while providing unobstructed ground access. While the Planting Density Tables specify "groundcover," at this location and elsewhere as noted underneath the Planting Density Tables, groundcover is also used to reference the proposed native seed mixes rather than individually planted groundcover plants. Zone 1 will be seeded at a rate of 20-25 pounds per acre.

c. **Zone 3 table depicts 6,539 groundcover plantings, but the Zone 3 plant schedule depicts 1,514 groundcover plantings. The Zone 1 planting area is identified as 26,154 square feet. At four feet on-center, as proposed, this would equate to approximately 1,900 groundcover plantings, rather than 1,514.**

   Groundcover planting density should be 2 feet on-center, resulting in 6,539 plants. However, shrubs are being proposed denser than the density table as it generally establishes more reliably. Salal is proposed in certain locations as a ground cover to create structural and species diversity. Native upland meadow grass mix is also proposed within the enhancement area and surrounding the trail for visual surveillance and safety.

d. **The plant schedule depicts salal at three feet on-center and snowberry at four feet on-center. Snowberry is a shrub, not a groundcover and would be more appropriate in the "massing shrubs" portion of the plant schedule. Further, the planting zone tables depict all groundcovers at four feet on-center.**

   Agree snowberry is a shrub and is now categorized accordingly. Salal, is used as a groundcover and per the density table, proposed to be planted 2 feet on center..

2. **The "Plant Communities Legend" on Sheet W3.3 is confusing. The legend depicts the Zone 4 planting area as the entire existing volunteer restoration area and shows the Zone 1 planting area transecting the volunteer restoration area. The CAR and Sheet W2.0 clarify that the temporary impacts within existing volunteer restoration area, which has been planted with willow stakes, will be restored with willow stakes per the Zone 4 planting schedule. The Plant Communities Legend should be revised to clarify that the Zone 4 willow stakes will be placed in the temporary disturbance area, rather than the larger existing restoration area, similar to the depiction on Sheet W2.0.**

   Note that Zone 4 is the Volunteer Restoration Area that occurs outside of the construction corridor. Those portions of the Volunteer Restoration Area that occur within the construction corridor have been included within Zone 1. The portion of Zone 4 reflected on the map has been reduced for clarity to show an area equal to the disturbed area of Volunteer Restoration Area by construction of the stormwater forcemain. The Zone 4 willow stakes will not be planted in the temporary disturbance area. These willow stakes will be used to infill the existing willow stakes where there are gaps in coverage, as outlined above in the response to Recommendations Question #4. The objective with this mitigation plan is to infill those sparse areas with the

estimated number of willows displaced by the construction area. Zone 1 plantings will include more than willows as a number of other shrub species have been included to add species diversity while also providing a path unobstructed by woody plant material for maintenance access to the outfall. The willows that will be included within the Zone 1 plantings are separate from those displaced willows to be planted in Zone 4.

3. **"Viewport 5" proposes Scouler's willows beneath existing overhead utility lines. Scouler's willows can reach 60 feet in height. The planting plan should avoid species that may exceed the allowed height threshold beneath the powerlines so that future mowing/pruning is not required. Coordination with the utility agency may be necessary.**

   Scouler's willow has been removed from the selection of plants proposed under the overhead utility lines. No plants proposed within the vicinity of the utility lines exceed a mature height of 25 feet as typically allowed under overhead lines and as advised by our electrical consultant. All shrubs with mature height taller than 12 feet are placed away from directly below the utility lines. A few conifers will be planted closer to the building site and well away from the utility lines.

4. **The CAR notes that the mitigation performance standards will be provided after initial review and comments. An additional review will be required upon preparation of the performance standards.**

   Performance standards have been added. See response to Recommendation #6 above.

5. **A contingency plan has not been provided as part of the mitigation plan as required per IMC 18.10.760.H and the Development Agreement.**

   A contingency was previously included in the Critical Areas Report. See response to Recommendation #7 above.

6. **A bond quantity worksheet will be required in accordance with IMC 18.10.810. Both the current IMC and the Development Agreement Appendix J Section 13 require a performance bond equal to 150 percent of the total cost of the mitigation, if the mitigation is not complete prior to final approval of the development proposal. Both the current IMC and the Development Agreement also require a maintenance and monitoring bond equal to 50 percent of the estimated cost of maintenance and monitoring over five years.**

   Comment noted. A bond quantity worksheet has been prepared. See response to Recommendation #8 above.

Should you have any questions or require additional information regarding this Project, please contact Chris Borzio at KPFF or me at *jen@wet.land* (cell: 813-846-1684).

Jennifer Marriott, PWS
Owner, Wet.land, LLC

Attachments:

1. Attachment 1 – Revised Rating Sheet for Wetland E, as revised by Wet.land, LLC
2. Attachment 2 – Revised Mitigation Plan Set, prepared by Talasaea Consultants, 13 April 2022
3. Attachment 3 – Bond Quantity Worksheet
4. Attachment 4 – Exhibit D-2, Section 3.0, Appendix D *Community Spaces* of the DA
5. Attachment 5 – Section 5.1 of Appendix E *Circulation Standards* of the DA

ATTACHMENT 1

Revised Rating Sheet for Wetland E, as revised by Wet.land, LLC

Wetlan

Current Rating Summary Based on Lake Fringe HGM Class

TAL-1775

RATING SUMMARY – Western Washington

Name of wetland (or ID #): WeHand E Date of site visit: 10/8/18

Rated by J. Marriott Trained by Ecology? ✓ Yes ___No Date of training 4/2015

HGM Class used for rating Depress (Slope) Wetland has multiple HGM classes? ✓Y ___N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY ____ (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

✓ **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

75'

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	H M (L)	H (M) L	
Landscape Potential	H (M) L	(H) M L	H (M) L	
Value	(H) M L	(H) M L	(H) M L	TOTAL
Score Based on Ratings	7	6	6	19
	9	7	8	24

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Previous Rating Summary

TAL-1775

Wetland name or number E

RATING SUMMARY – Western Washington

Name of wetland (or ID #): WeHand E Date of site visit: 10/8/18

Rated by J. Marriott Trained by Ecology? ✓ Yes ___No Date of training 4/2015

HGM Class used for rating Depress (Slope) Wetland has multiple HGM classes? ✓Y ___N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY ____ (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

75'

✓ **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	H M (L)	H (M) L	
Landscape Potential	H (M) L	H (M) L	H M (L)	
Value	(H) M L	(H) M L	(H) M L	TOTAL
Score Based on Ratings	7	6	6	19

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	

Wetland name or number

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number E

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

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Wetland name or number E

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	1
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	8

4

12

Rating of Site Potential If score is: ___ **12-16 = H** ✓ **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: ___ **3 or 4 = H** ✓ **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	4

Rating of Value If score is: ✓ **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	Ø

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*

Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	Ø

D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*

The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	5

Total for D 4	Add the points in the boxes above	5

Rating of Site Potential If score is: ___ **12-16 = H** ___ **6-11 = M** ✓ **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	Ø
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	Ø
Total for D 5	Add the points in the boxes above	1

Rating of Landscape Potential If score is: ___ **3 = H** ✓ **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
• Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the sub-basin.	points = 1	2
The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0 Ø

Total for D 6	Add the points in the boxes above	2

Rating of Value If score is: ✓ **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number E

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?	
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:	
Depressions cover > 3/4 area of wetland — points = 8	
Depressions cover > ½ area of wetland — points = 4	
Depressions present but cover < ½ area of wetland — points = 2	
No depressions present — points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)	
Trees or shrubs > 2/3 area of the wetland — points = 8	
Trees or shrubs > 1/3 area of the wetland — points = 6	
Herbaceous plants (> 6 in high) > 2/3 area of the wetland — points = 6	
Herbaceous plants (> 6 in high) > 1/3 area of the wetland — points = 3	
Trees, shrubs, and ungrazed herbaceous < 1/3 area of the wetland — points = 0	
Total for R 1 — Add the points in the boxes above	

Rating of Site Potential If score is: ___**12-16 = H** ___**6-11 = M** ___**0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?	
R 2.1. Is the wetland within an incorporated city or within its UGA? Yes = 2 No = 0	
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? Yes = 1 No = 0	
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? Yes = 1 No = 0	
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____ Yes = 1 No = 0	
Total for R 2 — Add the points in the boxes above	

Rating of Landscape Potential If score is: ___**3-6 = H** ___**1 or 2 = M** ___**0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi? Yes = 1 No = 0	
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens? Yes = 1 No = 0	
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*) Yes = 2 No = 0	
Total for R 3 — Add the points in the boxes above	

Rating of Value If score is: ___**2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number ____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?	
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20 points = 9 If the ratio is 10-20 points = 6 If the ratio is 5-<10 points = 4 If the ratio is 1-<5 points = 2 If the ratio is < 1 points = 1	
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > $^{1}/_{3}$ area OR emergent plants > $^{2}/_{3}$ area points = 7 Forest or shrub for > $^{1}/_{10}$ area OR emergent plants > $^{1}/_{3}$ area points = 4 Plants do not meet above criteria points = 0	
Total for R 4 Add the points in the boxes above	

Rating of Site Potential If score is:___**12-16 = H** ___**6-11 = M** ___**0-5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 No = 1	
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 No = 0	
R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 No = 1	
Total for R 5	Add the points in the boxes above	

Rating of Landscape Potential If score is:___**3 = H** ___**1 or 2 = M** ___**0 = L** *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?	
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.* The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	
Total for R 6 Add the points in the boxes above	

Rating of Value If score is:___**2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number E

LAKE FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

L 1.0. Does the site have the potential to improve water quality?		
L 1.1. Average width of plants along the lakeshore *(use polygons of Cowardin classes)*:		
Plants are more than 33 ft (10 m) wide	points = 6	6
Plants are more than 16 ft (5 m) wide and <33 ft	points = 3	
Plants are more than 6 ft (2 m) wide and <16 ft	points = 1	
Plants are less than 6 ft wide	points = 0	
L 1.2. Characteristics of the plants in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. *These are not Cowardin classes. Area of cover is total cover in the unit, but it can be in patches. Herbaceous does not include aquatic bed.*		
Cover of herbaceous plants is >90% of the vegetated area	points = 6	4
Cover of herbaceous plants is $>^{2}/_{3}$ of the vegetated area	points = 4	
Cover of herbaceous plants is $>^{1}/_{3}$ of the vegetated area	points = 3	
Other plants that are not aquatic bed $>^{2}/_{3}$ unit	points = 3	
Other plants that are not aquatic bed in $>^{1}/_{3}$ vegetated area	points = 1	
Aquatic bed plants and open water cover $>^{2}/_{3}$ of the unit	points = 0	
Total for L 1	Add the points in the boxes above	10

Rating of Site Potential If score is: ___**8-12 = H** ___**4-7 = M** ___**0-3 = L** *Record the rating on the first page*

L 2.0. Does the landscape have the potential to support the water quality function of the site?		
L 2.1. Is the lake used by power boats?	Yes = 1 No = 0	1
L 2.2. Is > 10% of the area within 150 ft of wetland unit on the upland side in land uses that generate pollutants?	Yes = 1 No = 0	1
L 2.3. Does the lake have problems with algal blooms or excessive plant growth such as milfoil?	Yes = 1 No = 0	1
Total for L 2	Add the points in the boxes above	3

Rating of Landscape Potential: If score is: ___**2 or 3 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

L 3.0. Is the water quality improvement provided by the site valuable to society?		
L 3.1. Is the lake on the 303(d) list of degraded aquatic resources?	Yes = 1 No = 0	1
L 3.2. Is the lake in a sub-basin where water quality is an issue (at least one aquatic resource in the basin is on the 303(d) list)?	Yes = 1 No = 0	1
L 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the lake or basin in which the unit is found.*	Yes = 2 No = 0	2
Total for L 3	Add the points in the boxes above	4

Rating of Value If score is: ___**2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number ____

LAKE FRINGE WETLANDS

Hydrologic Functions - Indicators that the wetland unit functions to reduce shoreline erosion

L 4.0. Does the site have the potential to reduce shoreline erosion?	
L 4.1. Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include Aquatic bed): *Choose the highest scoring description that matches conditions in the wetland.*	
> ¾ of distance is Scrub-shrub or Forested at least 33 ft (10 m) wide — points = 6	4
> ¾ of distance is Scrub-shrub or Forested at least 6 ft (2 m) wide — points = 4	
> ¼ distance is Scrub-shrub or Forested at least 33 ft (10 m) wide — points = 4	
Plants are at least 6 ft (2 m) wide (any type except Aquatic bed) — points = 2	
Plants are less than 6 ft (2 m) wide (any type except Aquatic bed) — points = 0	

Rating of Site Potential: If score is: ___**6 = M** ___**0-5 = L** *Record the rating on the first page*

L 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
L 5.1. Is the lake used by power boats with more than 10 hp?	Yes = 1 No = 0	1
L 5.2. Is the fetch on the lake side of the unit at least 1 mile in distance?	Yes = 1 No = 0	1
Total for L 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___**2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

L 6.0. Are the hydrologic functions provided by the site valuable to society?	
L 6.1. Are there resources along the shore that can be impacted by erosion? If more than one resource is present, choose the one with the highest score.	
There are human structures or old growth/mature forests within 25 ft of OHWM of the shore in the unit — points = 2	2
There are nature trails or other paths and recreational activities within 25 ft of OHWM — points = 1	
Other resources that could be impacted by erosion — points = 1	
There are no resources that can be impacted by erosion along the shores of the unit — points = 0	

Rating of Value: If score is: ___**2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

1775

Wetland name or number E

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(o 1% slope hos o 1 ft verticol drop in elevotion for every 100 ft of horizontol distance)* Slope is 1% or less — points = 3 Slope is > 1%-2% — points = 2 Slope is > 2%-5% — points = 1 Slope is greater than 5% — points = 0	3
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	Ø
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), ond uncut means not grazed or mowed and plants are higher thon 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 Dense, uncut, herbaceous plants > ½ of area — points = 3 Dense, woody, plants > ½ of area — points = 2 Dense, uncut, herbaceous plants > ¼ of area — points = 1 Does not meet any of the criteria above for plants — points = 0	6 3
Total for S 1 — Add the points in the boxes above	9

Rating of Site Potential If score is: ___**12 = H** ✓**6-11 = M** ___**0-5 = L** *Record the rating on the first poge*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	1
Total for S 2 — Add the points in the boxes above	2

Rating of Landscape Potential If score is: ✓**1-2 = M** ___**0 = L** *Record the rating on the first poge*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the bosin is on the 303(d) list.* Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is o TMDL for the bosin in which unit is found.* Yes = 2 No = 0	2
Total for S 3 — Add the points in the boxes above	4

Rating of Value If score is: ✓**2-4 = H** ___**1 = M** ___**0 = L** *Record the roting on the first page*

Wetland name or number _____

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland — points = 1 All other conditions — points = 0	1

Rating of Site Potential If score is: ✓ **1 = M** ___ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	1

Rating of Landscape Potential If score is: ✓ **1 = M** ___ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?

S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) — points = 2 Surface flooding problems are in a sub-basin farther down-gradient — points = 1 No flooding problems anywhere downstream — points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 — Add the points in the boxes above	2

Rating of Value If score is ✓ **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

1775

Wetland name or number E

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

___ Aquatic bed	4 structures or more: points = 4
✓ Emergent	3 structures: points = 2
___ Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
✓ Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

✓ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

4

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

___ Permanently flooded or inundated	4 or more types present: points = 3
✓ Seasonally flooded or inundated	3 types present: points = 2
___ Occasionally flooded or inundated	2 types present: points = 1
✓ Saturated only	1 type present: points = 0
✓ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
✓ **Lake Fringe wetland**	**2 points**
___ **Freshwater tidal wetland**	**2 points**

3

4

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

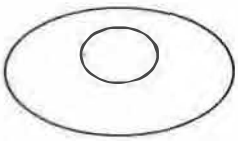
If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

1

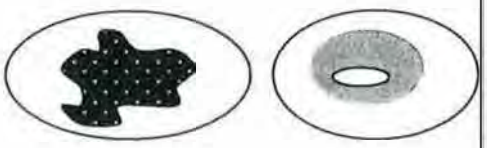
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points



Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3 points

3

2

Wetland name or number _____ 8 12

H 1.5. Special habitat features:

Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ✓ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).
- ___ Standing snags (dbh > 4 in) within the wetland
- ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- ✓ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)*
- ✓ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
- ___ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

3

Total for H 1 — Add the points in the boxes above: 11 15

Rating of Site Potential If score is: ___ 15-18 = H ✓ 7-14 = M ___ 0-6 = L — *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?

H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*).

Calculate: % undisturbed habitat___ + [(% moderate and low intensity land uses)/2]___ = _____%

2% + (34%/2) = 19%

If total accessible habitat is:

- > 1/3 (33.3%) of 1 km Polygon — points = 3
- 20-33% of 1 km Polygon — points = 2
- 10-19% of 1 km Polygon — points = 1
- < 10% of 1 km Polygon — points = 0

1

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: % undisturbed habitat___ + [(% moderate and low intensity land uses)/2]___ = _____%

21% + (34%/2) = 38%

- Undisturbed habitat > 50% of Polygon — points = 3
- Undisturbed habitat 10-50% and in 1-3 patches — points = 2
- Undisturbed habitat 10-50% and > 3 patches — points = 1
- Undisturbed habitat < 10% of 1 km Polygon — points = 0

1

H 2.3. Land use intensity in 1 km Polygon: If

- > 50% of 1 km Polygon is high intensity land use — points = (- 2)
- ≤ 50% of 1 km Polygon is high intensity — points = 0

-2 0

Total for H 2 — Add the points in the boxes above: 0 2

Rating of Landscape Potential If score is: ___ 4-6 = H ___ 1-3 = M ✓ < 1 = L — *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: — points = 2

- ✓ It has 3 or more priority habitats within 100 m (see next page)
- — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- — It is mapped as a location for an individual WDFW priority species
- — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1

Site does not meet any of the criteria above — points = 0

2

Rating of Value If score is: 2 = H ___ 1 = M ___ 0 = L — *Record the rating on the first page*

Wetland name or number E

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number_____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below. If you answer YES you will still need to rate the wetland based on its functions.* SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number E

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	

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Hyla Crossing Pumped Stormwater Force Main Project
Wetland E Rating - Cover Type Classifications Figure

Note: Tibbetts Creek is separated from Wetland E by a berm/spoil pile. Tibbetts Creek at this location is within a defined channel below the elevation of much of the wetland. There are wetlands adjacent to the stream within the channel that are not represented here and that remain separate from Wetland E hydrologically.

OHWM
(@ el. 31.76' NAVD88)

L2EM - Lacustrine Littoral Emergent (Aquatic Bed)

Perennial Stream Adjacent to Unit (Tibbetts Creek)

Perennial Stream Adjacent to Unit (Schneider Creek)

PFO - Forested

PEM - Emergent

150'-1"

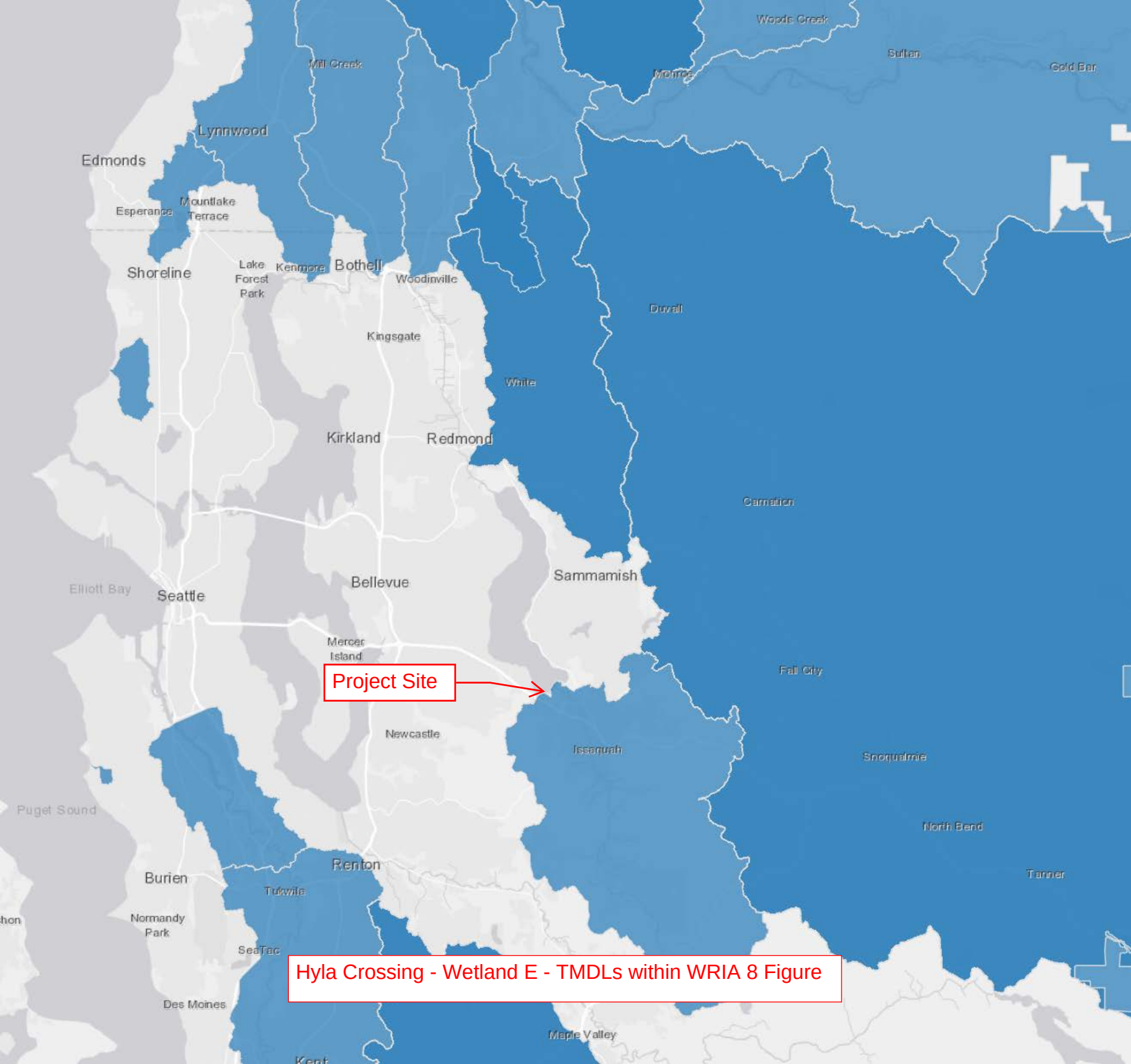
Wetland E limits (approx)

40m
100ft

47.55642 -122.07530 Degrees

Hyla Crossing - Wetland E - 303(d) Waters Figure

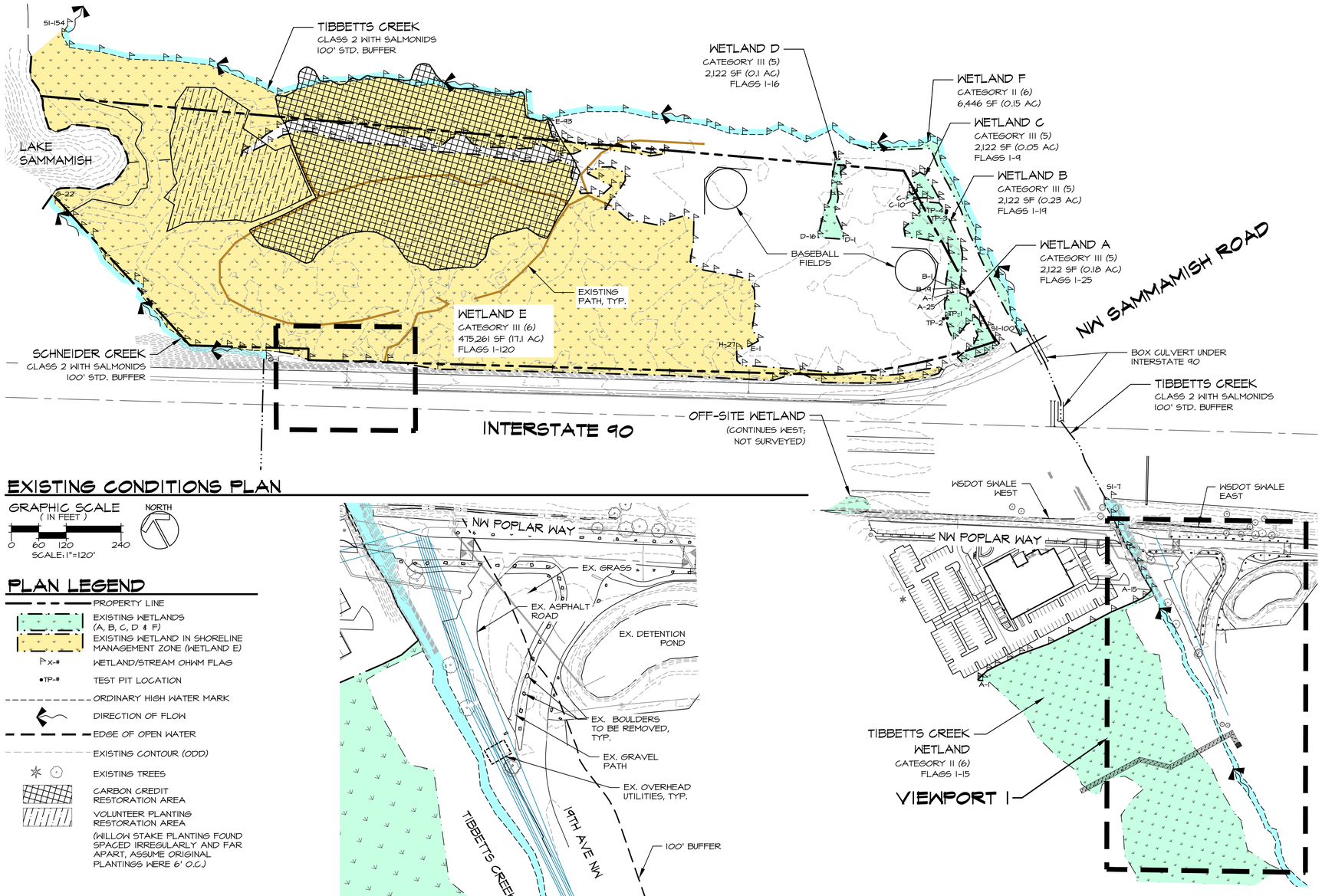

188.78 ac
41.09 ac
31.78 ac
14.35 ac
48.63 ac
300.68 ac
98.67 ac
13.34 ac
NW Sammamish Rd
Newport Way NW
17th Ave NW
90
LEGEND
Blue = Lake - Disturbed
Red = Relatively Undisturbed
Yellow = High Intensity Land Use
Hyla Crossing - Wetland E - 1km Land Use Figure
Google Earth



Hyla Crossing - Wetland E - TMDLs within WRIA 8 Figure

ATTACHMENT 2

Revised Mitigation Plan Set, prepared by Talasaea Consultants, 13 April 2022



EXISTING CONDITIONS PLAN

GRAPHIC SCALE (IN FEET)
0 60 120 240
SCALE: 1"=120'

NORTH

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLANDS (A, B, C, D & F)
- EXISTING WETLAND IN SHORELINE MANAGEMENT ZONE (WETLAND E)
- X-# — WETLAND/STREAM OHWM FLAG
- TP-# — TEST PIT LOCATION
- ORDINARY HIGH WATER MARK
- DIRECTION OF FLOW
- EDGE OF OPEN WATER
- EXISTING CONTOUR (ODD)
- EXISTING TREES
- CARBON CREDIT RESTORATION AREA
- VOLUNTEER PLANTING RESTORATION AREA (WILLOW STAKE PLANTING FOUND SPACED IRREGULARLY AND FAR APART, ASSUME ORIGINAL PLANTINGS WERE 6' O.C.)

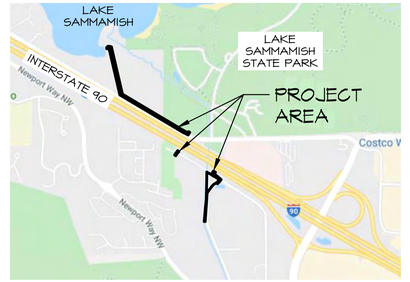
VIEWPORT 1

GRAPHIC SCALE (IN FEET)
0 30 60 120
SCALE: 1"=60'

NORTH

VICINITY MAP

NTS



SOURCE: GOOGLE MAPS; WWW.MAPS.GOOGLE.COM (ACCESSED 10/1/2019)

NORTH
NTS

CONTACTS

APPLICANT/OWNER
NAME: KRISTI TRIPPLE
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ENGINEER
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ENVIRONMENTAL CONSULTANT
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EPARKER@TALASAEA.COM

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JEN@WET.LAND

SHEET INDEX

NOT FOR CONSTRUCTION

THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE:

SUBJECT TO REVISION

811 Know what's **below.** **Call** before you dig.

NOTES

1. SURVEY PROVIDED BY BUSH, ROED, & HITCHINGS INC., 2009 MINOR AVE E SEATTLE, WA 98102-3513, (206) 323-4144.
2. SITE PLAN PROVIDED BY KPFF, 1601 5TH AVE SUITE 1600 SEATTLE, WA 98101 , (206) 622-5822.
3. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
4. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN MAY, 2021.

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TALASAEA CONSULTANTS, INC.
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15020 Bear Creek Road Northeast
Woodinville, Washington 98077
Bus (425) 861-7550 ~ Fax (425) 861-7549

PROJECT
HYLA CROSSING PUMPED STORMWATER DISCHARGE

ISSAQUAH, WA

OWNER
ROWLEY PROPERTIES
1595 NW GILMAN BLVD
ISSAQUAH WA, 98027

PROFESSIONAL SEAL

DESIGN TEAM: EP, AO
PRINCIPAL: BS
PROJECT MANAGER: EP
PROJECT ARCHITECT: EP
DRAWN BY: FH
CHECKED BY: EP

DRAWING SET DESCRIPTION
ASDP/SSDP/SV RESUBMITTAL

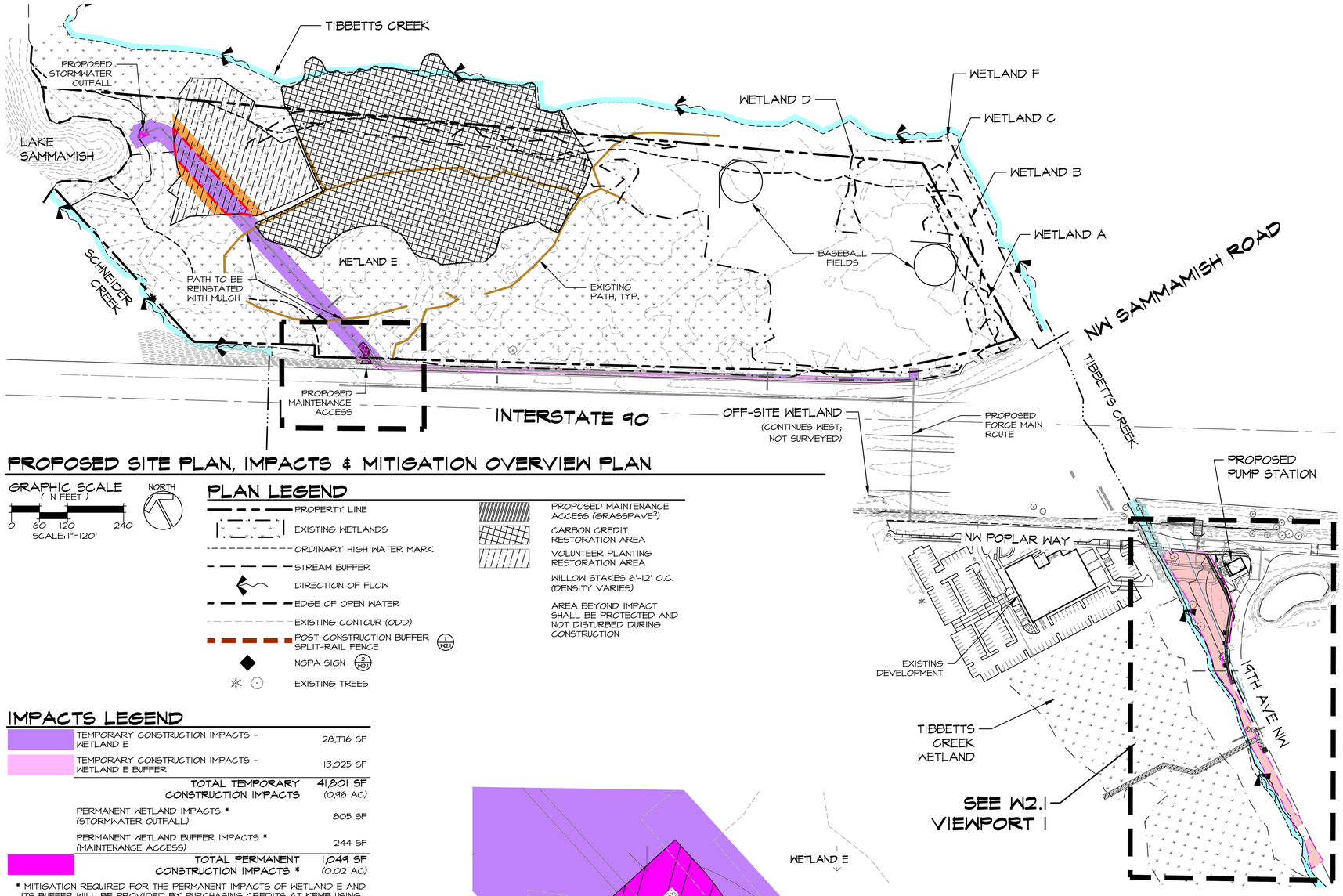
REVISIONS

No.	DATE	DESCRIPTION
1	10/3/2019	**30% CD**
2	4/1/2020	**ASDP**
3	4/12/2021	**ASDP REVISION #1**
4	9/8/2021	**ASDP REVISION #2**
5	4/12/2022	**ASDP/SSDP/SV**

SHEET TITLE
EXISTING CONDITIONS PLAN

SHEET NUMBER
W1.0

ISSUE DATE
4/12/2021



PROPOSED SITE PLAN, IMPACTS & MITIGATION OVERVIEW PLAN

GRAPHIC SCALE (IN FEET)
0 60 120 240
SCALE: 1"=120'

NORTH

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLANDS
- ORDINARY HIGH WATER MARK
- STREAM BUFFER
- DIRECTION OF FLOW
- EDGE OF OPEN WATER
- EXISTING CONTOUR (ODD)
- POST-CONSTRUCTION BUFFER SPLIT-RAIL FENCE (1/W27)
- NGPA SIGN (2/W27)
- EXISTING TREES

- PROPOSED MAINTENANCE ACCESS (GRASSPAVE²)
- CARBON CREDIT RESTORATION AREA
- VOLUNTEER PLANTING RESTORATION AREA
- WILLOW STAKES 6'-12' O.C. (DENSITY VARIES)
- AREA BEYOND IMPACT SHALL BE PROTECTED AND NOT DISTURBED DURING CONSTRUCTION

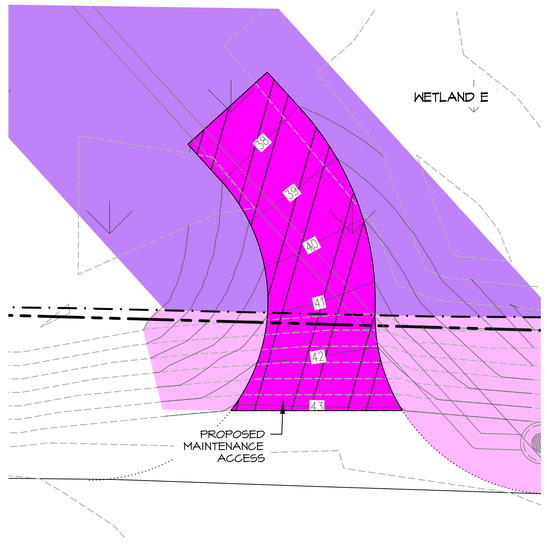
IMPACTS LEGEND

TEMPORARY CONSTRUCTION IMPACTS - WETLAND E	28,776 SF
TEMPORARY CONSTRUCTION IMPACTS - WETLAND E BUFFER	13,025 SF
TOTAL TEMPORARY CONSTRUCTION IMPACTS	41,801 SF (0.96 AC.)
PERMANENT WETLAND IMPACTS * (STORMWATER OUTFALL)	805 SF
PERMANENT WETLAND BUFFER IMPACTS * (MAINTENANCE ACCESS)	244 SF
TOTAL PERMANENT CONSTRUCTION IMPACTS *	1,049 SF (0.02 AC.)

* MITIGATION REQUIRED FOR THE PERMANENT IMPACTS OF WETLAND E AND ITS BUFFER WILL BE PROVIDED BY PURCHASING CREDITS AT KFMB USING THE CREDITS PER UNIT IMPACT RATIOS PROVIDED IN THE KFMB'S MITIGATION BANKING INSTRUMENT (SEE CRITICAL AREAS REPORT)

MITIGATION LEGEND

RESTORATION OF TEMPORARY CONSTRUCTION IMPACTS - WETLAND E	28,776 SF
RESTORATION OF TEMPORARY CONSTRUCTION IMPACTS - WETLAND E BUFFER	13,025 SF
TOTAL RESTORATION OF TEMPORARY CONSTRUCTION IMPACTS	41,801 SF (0.96 AC.)
TIBBETTS CREEK NORTHERN ENHANCEMENT AREA (PER EXHIBIT 16 HYLA CROSSING MSP/BSP 97-01 NOTED IN APPENDIX J, CRITICAL AREAS, EXHIBIT J-1, DEVELOPER'S AGREEMENT.)	26,154 SF (0.6 AC)
VOLUNTEER RESTORATION AREA DISTURBED BY CONSTRUCTION	8,237 SF
WETLAND ENHANCEMENT (AREA TO BE ENHANCED BY NUMBER OF WILLOWS DISPLACED BY CONSTRUCTION WITHIN THE VOLUNTEER RESTORATION AREA) (ESTIMATE: 8,237 SF (CONSTRUCTION AREA) X 0.0277 =228 X 3 = 684)	



VIEWPORT 1

SCALE: 1"=10'

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206.622.5822
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TALASAEA CONSULTANTS, INC.
Resource and Environmental Planning
15020 Bear Creek Road Northeast
Woodinville, Washington 98077
Bus (425) 861-7550 – Fax (425) 861-7549

PROJECT
HYLA CROSSING PUMPED STORMWATER DISCHARGE

ISSAQUAH, WA

OWNER
ROWLEY PROPERTIES
1595 NW GILMAN BLVD
ISSAQUAH WA, 98027

PROFESSIONAL SEAL

DESIGN TEAM	EP, AO
PRINCIPAL	BS
PROJECT MANAGER	EP
PROJECT ARCHITECT	EP
DRAWN BY	FH
CHECKED BY	EP

DRAWING SET DESCRIPTION
ASDP/SSDP/SV RESUBMITTAL

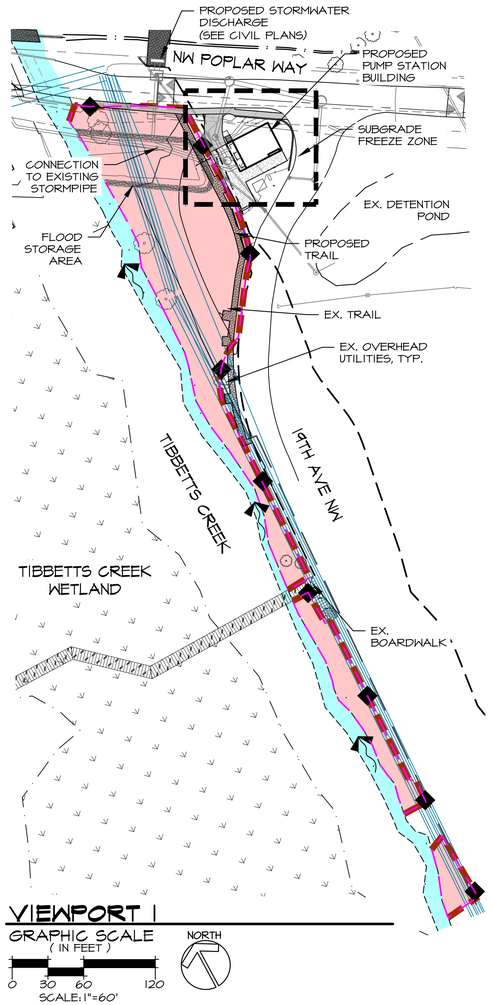
REVISIONS

No.	DATE	DESCRIPTION
1	10/3/2019	**30% CD**
2	4/1/2020	**ASDP**
3	4/12/2021	**ASDP REVISION #1**
4	9/8/2021	**ASDP REVISION #2**
5	4/12/2022	**ASDP/SSDP/SV**

SHEET TITLE
SITE PLAN, IMPACTS & MITIGATION OVERVIEW PLAN

SHEET NUMBER
W2.0

ISSUE DATE
4/12/2021



VIEWPORT 1

GRAPHIC SCALE (IN FEET)
0 30 60 120
SCALE: 1"=60'

NORTH

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLANDS
- ORDINARY HIGH WATER MARK
- STREAM BUFFER
- DIRECTION OF FLOW
- EDGE OF OPEN WATER
- EXISTING CONTOUR (ODD)
- POST-CONSTRUCTION BUFFER SPLIT-RAIL FENCE (1 / W2.1)
- NGPA SIGN (2 / W2.1)
- EXISTING TREES

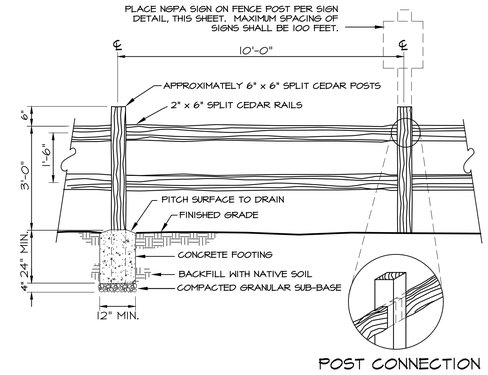
IMPACTS LEGEND

TEMPORARY CONSTRUCTION IMPACTS - WETLAND E	28,716 SF
TEMPORARY CONSTRUCTION IMPACTS - WETLAND E BUFFER	13,025 SF
TOTAL TEMPORARY CONSTRUCTION IMPACTS	41,801 SF (0.96 AC)
PERMANENT WETLAND IMPACTS * (STORMWATER OUTFALL)	805 SF
PERMANENT WETLAND BUFFER IMPACTS * (MAINTENANCE ACCESS)	244 SF
TOTAL PERMANENT CONSTRUCTION IMPACTS *	1,049 SF (0.02 AC)

* MITIGATION REQUIRED FOR THE PERMANENT IMPACTS OF WETLAND E AND ITS BUFFER WILL BE PROVIDED BY PURCHASING CREDITS AT KFMB USING THE CREDITS PER UNIT IMPACT RATIOS PROVIDED IN THE KFMB'S MITIGATION BANKING INSTRUMENT (SEE CRITICAL AREAS REPORT)

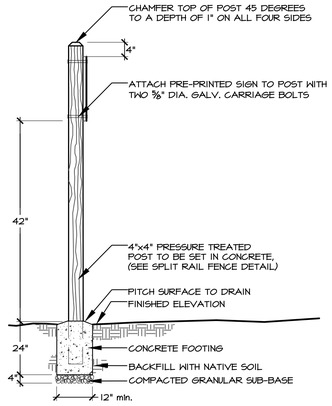
MITIGATION LEGEND

RESTORATION OF TEMPORARY CONSTRUCTION IMPACTS - WETLAND E	28,716 SF
RESTORATION OF TEMPORARY CONSTRUCTION IMPACTS - WETLAND E BUFFER	13,025 SF
TOTAL RESTORATION OF TEMPORARY CONSTRUCTION IMPACTS	41,801 SF (0.96 AC)
TIBBETTS CREEK NORTHERN ENHANCEMENT AREA (PER EXHIBIT 16 HYLA CROSSING MSP/BSP 97-01 NOTED IN APPENDIX J, CRITICAL AREAS, EXHIBIT J-1, DEVELOPER'S AGREEMENT.)	26,154 SF (0.6 AC)
VOLUNTEER RESTORATION AREA DISTURBED BY CONSTRUCTION	8,237 SF
WETLAND ENHANCEMENT (AREA TO BE ENHANCED BY NUMBER OF WILLOWS DISPLACED BY CONSTRUCTION WITHIN THE VOLUNTEER RESTORATION AREA) (ESTIMATE: 8,237 SF (CONSTRUCTION AREA) X 0.0277 =228 X 3 = 684)	



1 SPLIT 2-RAIL FENCE DETAIL

N.T.S.



2 NGPA SIGN POST DETAIL TYP.

N.T.S.

3 NGPA SIGN

NOT TO SCALE

NOT FOR CONSTRUCTION

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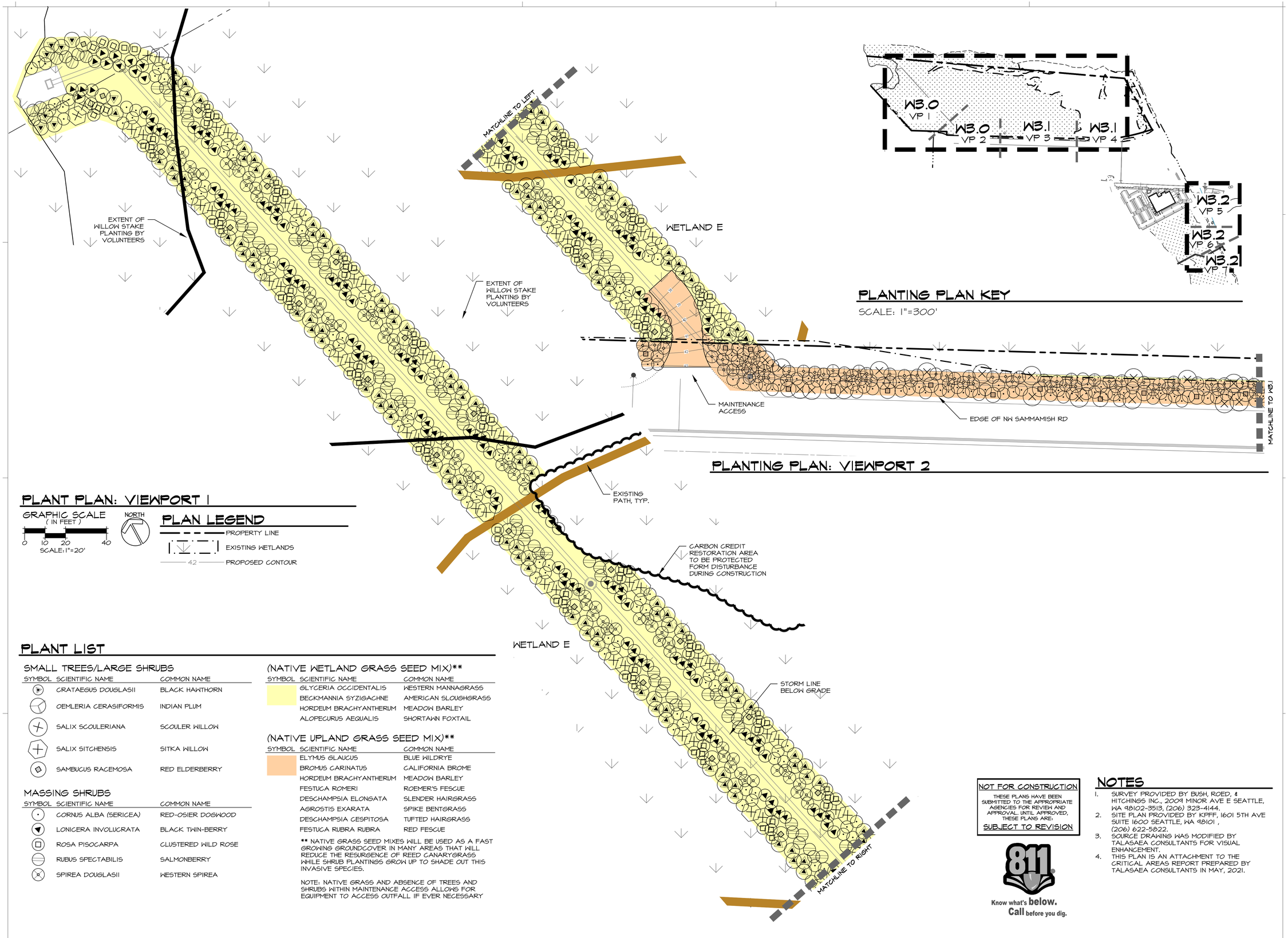

PLANTING PLAN KEY

SCALE: 1"=300'

PLANTING PLAN: VIEWPORT 2

PLANT PLAN: VIEWPORT 1

GRAPHIC SCALE (IN FEET)

0 10 20 40

SCALE: 1"=20'

NORTH

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLANDS
- 42 PROPOSED CONTOUR

PLANT LIST

SMALL TREES/LARGE SHRUBS

SYMBOL	SCIENTIFIC NAME	COMMON NAME
	CRATAEGUS DOUGLASII	BLACK HAWTHORN
	OEMLERIA CERASIFORMIS	INDIAN PLUM
	SALIX SCOULERIANA	SCOULER WILLOW
	SALIX SITCHENSIS	SITKA WILLOW
	SAMBUCUS RACEMOSA	RED ELDERBERRY

MASSING SHRUBS

SYMBOL	SCIENTIFIC NAME	COMMON NAME
	CORNUS ALBA (SERICEA)	RED-OSIER DOGWOOD
	LONICERA INVOLUCRATA	BLACK TWIN-BERRY
	ROSA PISOCARPA	CLUSTERED WILD ROSE
	RUBUS SPECTABILIS	SALMONBERRY
	SPIREA DOUGLASII	WESTERN SPIREA

(NATIVE WETLAND GRASS SEED MIX)**

SYMBOL	SCIENTIFIC NAME	COMMON NAME
	GLYCERIA OCCIDENTALIS	WESTERN MANNAGRASS
	BECKMANNIA SYZIGACHNE	AMERICAN SLOUGHGRASS
	HORDEUM BRACHYANTHERUM	MEADOW BARLEY
	ALOPECURUS AEQUALIS	SHORTAWN FOXTAIL

(NATIVE UPLAND GRASS SEED MIX)**

SYMBOL	SCIENTIFIC NAME	COMMON NAME
	ELYMUS GLAUCUS	BLUE WILDRYE
	BROMUS CARINATUS	CALIFORNIA BROME
	HORDEUM BRACHYANTHERUM	MEADOW BARLEY
	FESTUCA ROMERI	ROEMER'S FESCUE
	DESCHAMPSIA ELONGATA	SLENDER HAIRGRASS
	AGROSTIS EXARATA	SPIKE BENTGRASS
	DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS
	FESTUCA RUBRA RUBRA	RED FESCUE

** NATIVE GRASS SEED MIXES WILL BE USED AS A FAST GROWING GROUNDCOVER IN MANY AREAS THAT WILL REDUCE THE RESURGENCE OF REED CANARYGRASS WHILE SHRUB PLANTINGS GROW UP TO SHADE OUT THIS INVASIVE SPECIES.

NOTE: NATIVE GRASS AND ABSENCE OF TREES AND SHRUBS WITHIN MAINTENANCE ACCESS ALLOWS FOR EQUIPMENT TO ACCESS OUTFALL IF EVER NECESSARY

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SHEET TITLE
PLANTING PLAN

SHEET NUMBER
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ISSUE DATE
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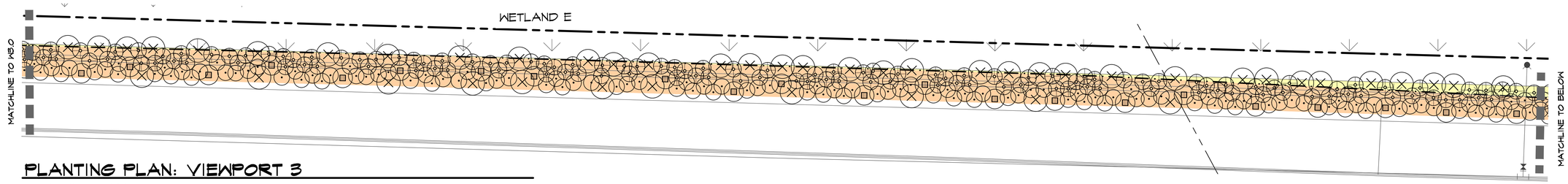
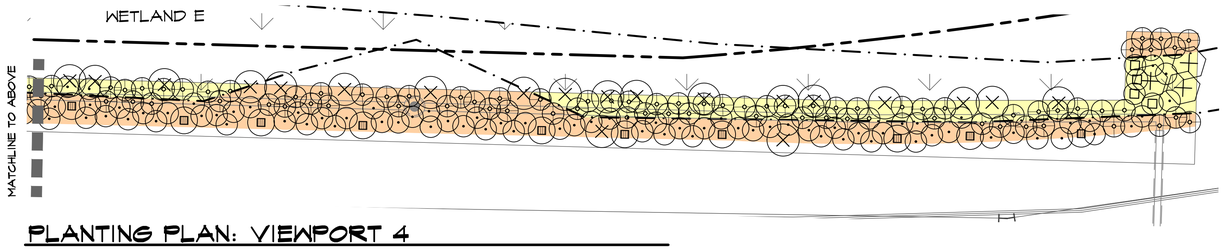


PLANTING PLAN: VIEWPORT 3

GRAPHIC SCALE (IN FEET)
0 10 20 40
SCALE: 1"=20'

NORTH



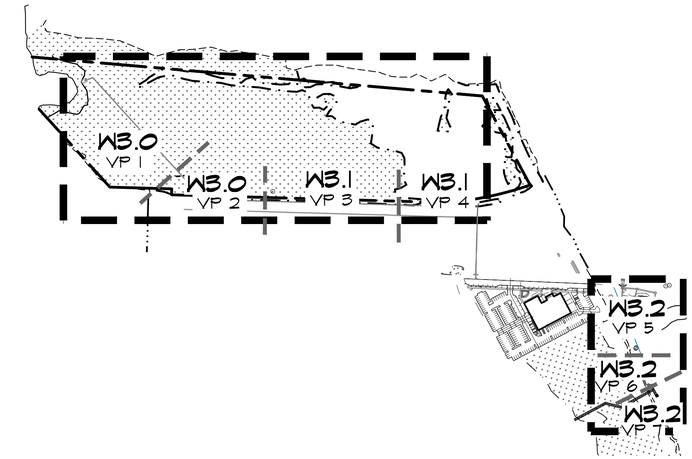
PLANTING PLAN: VIEWPORT 4

SCALE: 1"=20'

PLAN LEGEND

PROPERTY LINE

EXISTING WETLANDS



PLANTING PLAN KEY

SCALE: 1"=300'

PLANT LIST

SMALL TREES/LARGE SHRUBS

SYMBOL	SCIENTIFIC NAME	COMMON NAME
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	OEMLERIA CERASIFORMIS	INDIAN PLUM
	SALIX SCOULERIANA	SCOULER WILLOW
	SALIX SITCHENSIS	SITKA WILLOW
	SAMBUCUS RACEMOSA	RED ELDERBERRY

MASSING SHRUBS

SYMBOL	SCIENTIFIC NAME	COMMON NAME
	CORNUS ALBA (SERICEA)	RED-OSIER DOGWOOD
	LONICERA INVOLUCRATA	BLACK TWIN-BERRY
	ROSA PISOCARPA	CLUSTERED WILD ROSE
	RUBUS SPECTABILIS	SALMONBERRY
	SPIREA DOUGLASII	WESTERN SPIREA

(NATIVE WETLAND GRASS SEED MIX)**

SYMBOL	SCIENTIFIC NAME	COMMON NAME
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	AGROSTIS EXARATA	SPIKE BENTGRASS
	DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS
	FESTUCA RUBRA RUBRA	RED FESCUE

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SHEET TITLE
PLANTING PLAN

SHEET NUMBER
W3.1

ISSUE DATE
4/12/2021

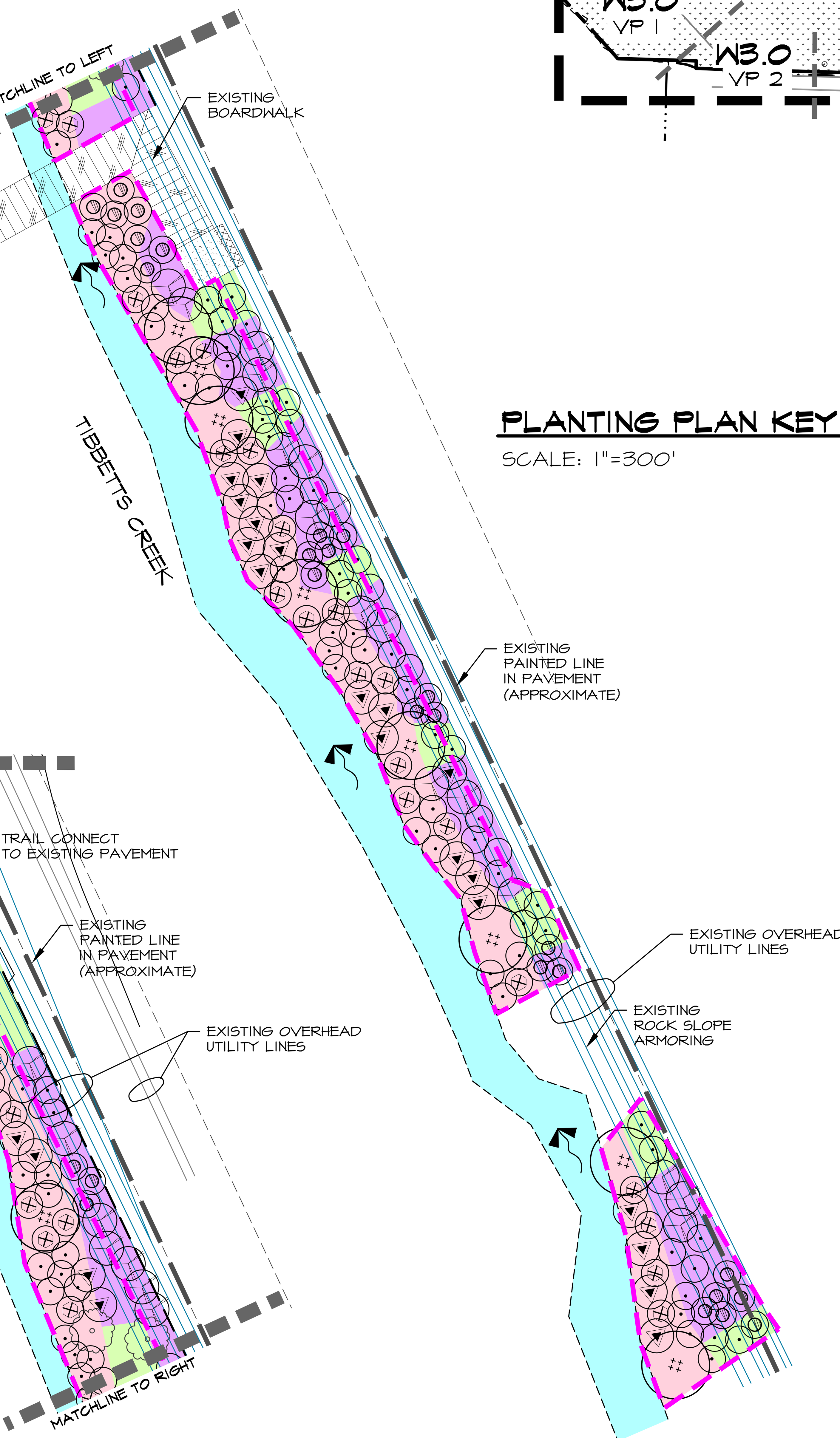
Apr 13, 2022 - 2:52pm ihuynh
Xref Filename: \ XS-SUR-16 \ x-hcpsd-ev \ X-HCPSD-CON-STG \ x-hcpsd-sd PF \ X-HCPSD-SP \ x-hcpsd-sp-tut \ X-HCPSD-UT \ X-RPW-BLDG \ X-RPW-SD \ X-RPW-SP \ X-RPW-UT \ x-hcpsd-tbb \ X-
Z:\DRAWING\1700-1799\TAL1775\Plans\TAL-1775 WP 2022-04-EP.dwg

PLANTING PLAN: VIEWPORT 5

GRAPHIC SCALE
(IN FEET)
0 10 20 40
SCALE: 1"=20'
NORTH

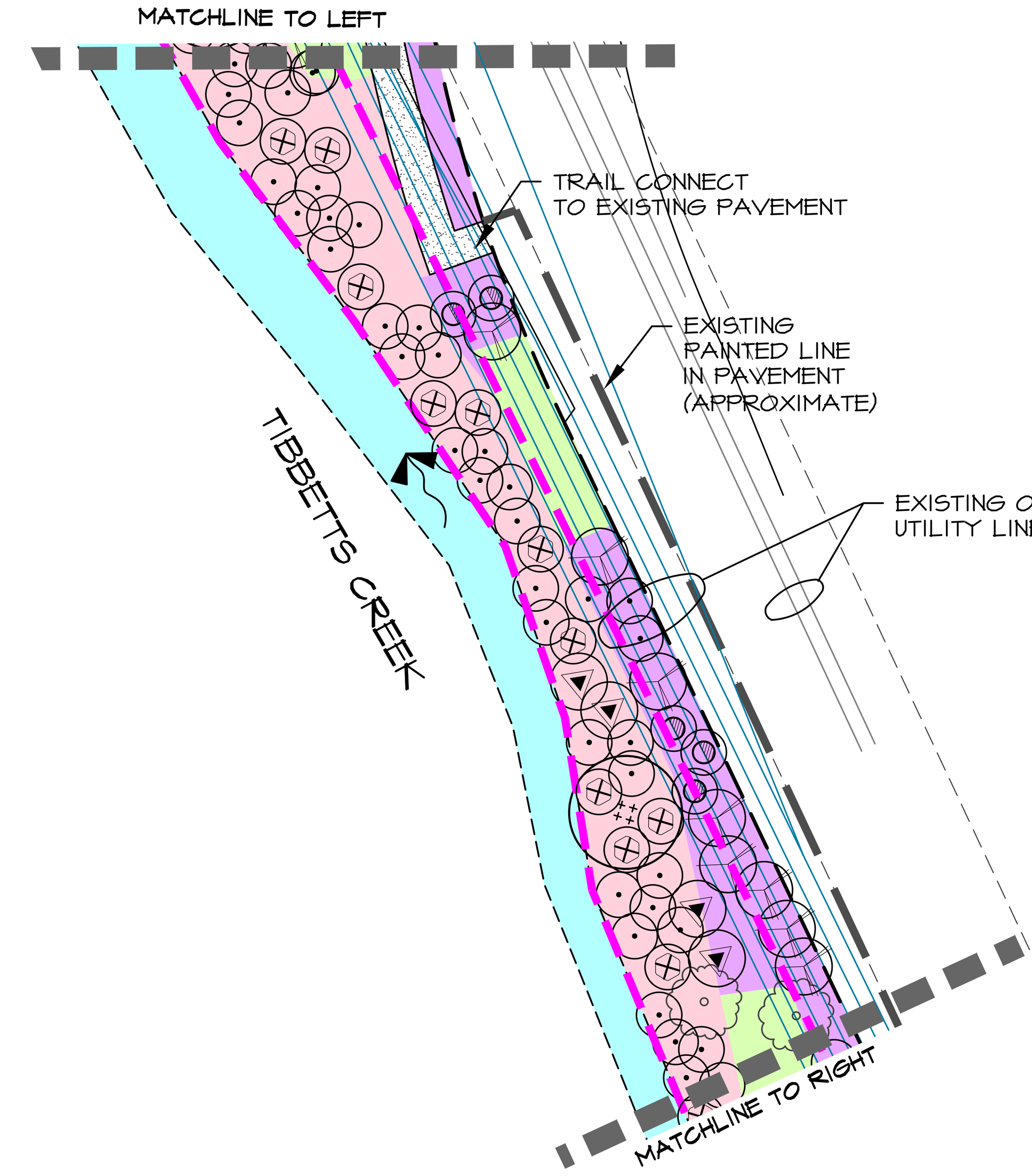
PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLANDS (A, B, C, D & F)
- ORDINARY HIGH WATER MARK
- 0.6 ACRE OF THE 100-FT BUFFER PER DA AGREEMENT
- DIRECTION OF FLOW
- EDGE OF OPEN WATER
- EXISTING CONTOUR (ODD)
- ENGINEERED WOOD FIBER TRAIL (ADA COMPLIANT)
- 6-FT LENGTH ARMLESS BENCH
- EXISTING TREES



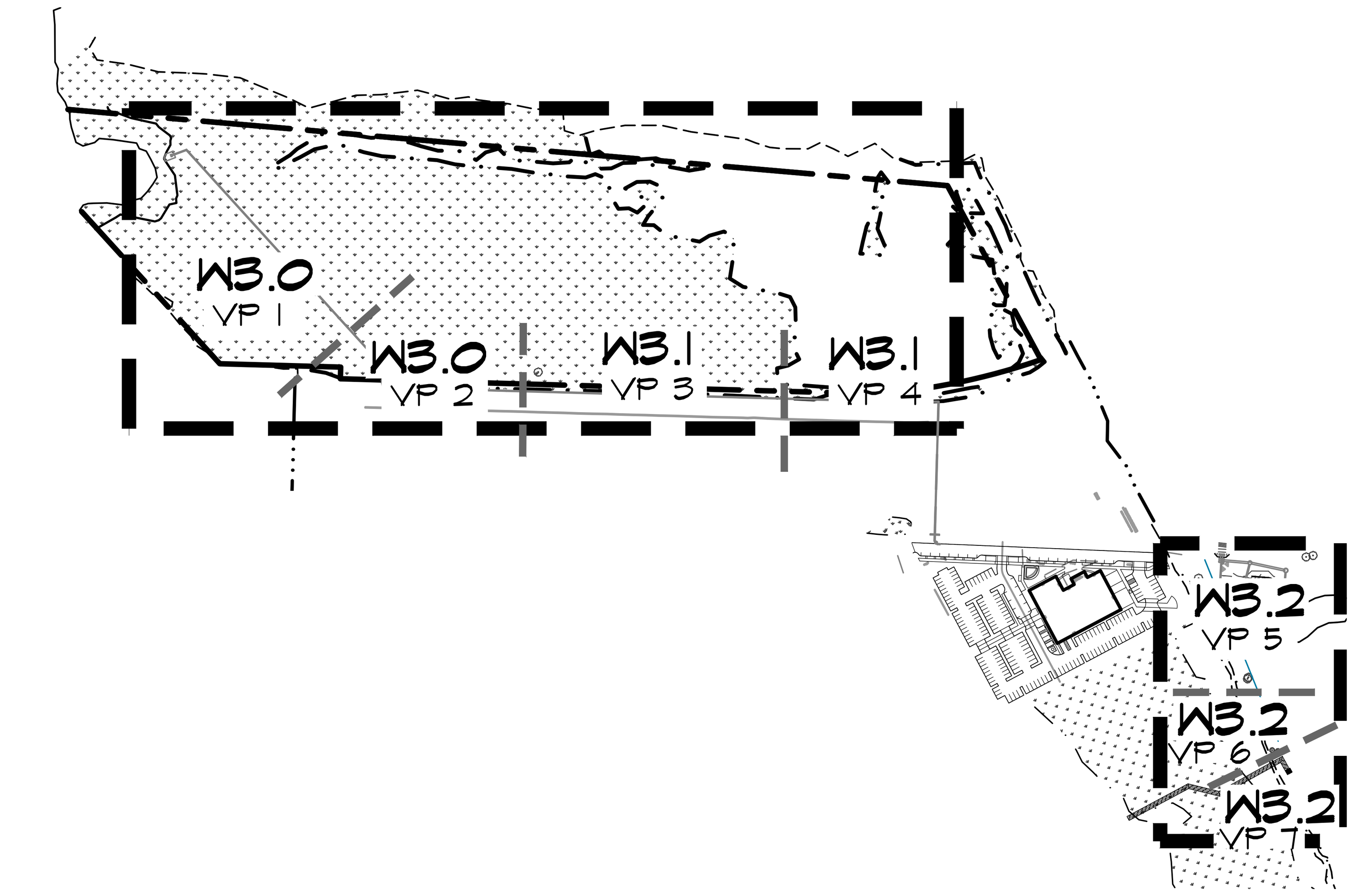
PLANTING PLAN: VIEWPORT 7

SCALE: 1"=20'



PLANTING PLAN: VIEWPORT 6

SCALE: 1"=20'



PLANTING PLAN KEY

SCALE: 1"=300'

PLANT LIST

LARGE TREES

SCIENTIFIC NAME	COMMON NAME
PSEUDOTSUGA MENZIEII	DOUGLAS FIR

SMALL TREES/LARGE SHRUBS

SCIENTIFIC NAME	COMMON NAME
ACER CIRCINATUM	VINE MAPLE
AMELANCHIER ALNIFOLIA	SERVICEBERRY
CRATAEGUS DOUGLASII	BLACK HAWTHORN
OEMLERIA CERASIFORMIS	INDIAN PLUM
SALIX HOOKERIANA	HOOKER'S WILLOW
SAMBUCUS RACEMOSA	RED ELDERBERRY

MASSING SHRUBS

SCIENTIFIC NAME	COMMON NAME
CORNUS ALBA (SERICEA)	RED-OSIER DOGWOOD
LONICERA INVOLUCRATA	BLACK TWIN-BERRY
RUBUS PARVIFLORUS	THIMBLEBERRY
ROSA PISOCARPA	CLUSTERED WILD ROSE
RUBUS SPECTABILIS	SALMONBERRY
SPIREA DOUGLASII	WESTERN SPIREA

GROUNDCOVERS

SYMBOL	SCIENTIFIC NAME	COMMON NAME
	ARCTOSTAPHYLOS UVA URSI	KINNICKINNICK
	GAULTHERIA SHALLON	SALAL
	POLYSTICHUM MUNITUM	SWORD FERN

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SHEET TITLE
PLANTING PLAN

SHEET NUMBER
W3.2

ISSUE DATE
4/12/2021

Apr 13, 2022 – 3:35pm fhuynh Z:\DRAWING\1700-1799\TAL1775\Plans\TAL-1775 WP 2022-04-EP.dwg

PLANT SCHEDULE

LARGE TREES

SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QTY./ZONE 1	2	3	4	SPACING	SIZE (MIN.)	NOTES
	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	FACU	-	-	8	-	AS SHOWN	6' HT.	FULL & BUSHY

SMALL TREES/LARGE SHRUBS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QTY./ZONE 1	2	3	4	SPACING	SIZE (MIN.)	NOTES
	ACER CIRCINATUM	VINE MAPLE	FAC	-	-	40	-	AS SHOWN	4' HT.	SINGLE TRUNK, WELL BRANCHED
	AMELANCHIER ALNIFOLIA	SERVICEBERRY	FACU	-	-	9	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	CORYLUS CORNUTA	WESTERN HAZELNUT	FACU	-	-	8	-	AS SHOWN	4-5' HT.	SINGLE TRUNK, WELL BRANCHED
	CRATAEGUS DOUGLASII	BLACK HAWTHORN	FAC	131	-	84	-	5' O.C.	24" HT.	MULTI-STEM
	OEMLERIA CERASIFORMIS	INDIAN PLUM	FACU	-	-	75	-	5' O.C.	24" HT.	MULTI-STEM
	SALIX HOOKERIANA	HOOKER'S WILLOW	FACW	-	-	277	-	3/SYMBOL	4' CUTTING	½" DIA. MIN., BARK INTACT
	SALIX SCOULERIANA	SCOULER WILLOW	FAC	36	213	-	-	3/SYMBOL	4' CUTTING	½" DIA. MIN., BARK INTACT
	SALIX SITCHENSIS	SITKA WILLOW	FACW	171	-	-	342	3/SYMBOL	4' CUTTING	½" DIA. MIN., BARK INTACT
	SAMBUCUS RACEMOSA	RED ELDERBERRY	FACU	26	45	16	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)

MASSING SHRUBS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QTY./ZONE 1	2	3	4	SPACING	SIZE (MIN.)	NOTES
	CORNUS ALBA (SERICEA)	RED-OSIER DOGWOOD	FACW	112	261	208	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	LONICERA INVOLUCRATA	BLACK TWIN-BERRY	FAC	136	-	-	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	ROSA NUTKANA	NOOTKA ROSE	FACU	-	-	33	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	ROSA PISOCARPA	CLUSTERED WILD ROSE	FAC	108	-	-	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	RUBUS PARVIFLORUS	THIMBLEBERRY	FACU	-	-	42	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	RUBUS SPECTABILIS	SALMONBERRY	FAC	88	-	-	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	SPIREA DOUGLASII	WESTERN SPIREA	FACW	133	224	-	-	4' O.C.	1 GAL.	FULL & BUSHY

GROUNDCOVERS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QTY./ZONE 1	2	3	4	SPACING	SIZE (MIN.)	NOTES
	ARCTOSTAPHYLOS UVA-URSI	KINNICKINNICK	FACU	-	-	3,090	-	2' O.C.	1 GAL	FULL & BUSHY
	GAULTHERIA SHALLON	SALAL	FACU	-	-	1,456	-	2' O.C.	1 GAL.	FULL & BUSHY
	POLYSTICHUM MUNITUM	SWORD FERN	FACU	-	-	2,909	-	2' O.C.	1 GAL.	FULL & BUSHY

NATIVE WETLAND GRASS SEED MIX** (20-25 LBS/ACRE)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	%	WL STATUS	QTY./ZONE 1	2	3	4	UNITS
	GLYCERIA OCCIDENTALIS	WESTERN MANNAGRASS	30	OBL	13	1	-	-	LBS.
	BECKMANNIA SYZIGACHNE	AMERICAN SLOUGHGRASS	60	OBL					
	HORDEUM BRACHYANTHERUM	MEADOW BARLEY	10	FACW					
	ALOPECURUS AEQUALIS	SHORTAWN FOXTAIL	10	OBL					

NATIVE UPLAND GRASS SEED MIX** (20-25 LBS/ACRE)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	%	WL STATUS	QTY./ZONE 1	2	3	4	UNITS
	ELYMUS GLAUCUS	BLUE WILDRYE	30	UPL	1	8	7	-	LBS.
	BROMUS CARINATUS	CALIFORNIA BROME	25	NL					
	HORDEUM BRACHYANTHERUM	MEADOW BARLEY	10	FACW					
	FESTUCA ROMERI	ROEMER'S FESCUE	10	NL					
	DESCHAMPSIA ELONGATA	SLENDER HAIRGRASS	10	FACW					
	AGROSTIS EXARATA	SPIKE BENTGRASS	5	FACW					
	DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS	5	FACW					
	FESTUCA RUBRA RUBRA	RED FESCUE	5	NL					

** NATIVE GRASS SEED MIXES WILL BE USED AS A FAST GROWING GROUNDCOVER IN MANY AREAS THAT WILL REDUCE THE RESURGENCE OF REED CANARYGRASS WHILE SHRUB PLANTINGS GROW UP TO SHADE OUT THIS INVASIVE SPECIES.

GENERAL PLANT INSTALLATION NOTES

1. PLANT TREES AND/OR SHRUBS 1" HIGHER THAN DEPTH GROWN AT NURSERY.
2. FOR CONTAINER TREES AND/OR SHRUBS, SCORE FOUR SIDES OF ROOTBALL PRIOR TO PLANTING. BUTTERFLY ROOTBALL IF ROOT CIRCLING IS EVIDENT.
3. STAKE DECIDUOUS AND EVERGREEN TREES 4 FEET AND OVER IN HEIGHT WITH ONE (1) STAKE PER TREE. STAKE TREES IMMEDIATELY AFTER PLANTING. PLACE STAKE AT THE OUTER EDGE OF THE ROOTS OR ROOTBALL, IN LINE WITH THE PREVAILING WIND. STAKES SHALL BE LOOSELY ATTACHED USING CHAIN-LOCK TREE TIES TO ALLOW FOR SOME TRUNK MOVEMENT. STAKES TO BE VERTICAL, PARALLEL, EVEN-TOPPED, UNSCARRED AND DRIVEN INTO UNDISTURBED SUBGRADE. REMOVE AFTER ONE YEAR.
4. WATER PLANTS IMMEDIATELY UPON PLANTING, THEN PROVIDE MANUAL WATERING OR A TEMPORARY IRRIGATION SYSTEM TO PREVENT PLANT MORTALITY AND ENSURE PROPER PLANT ESTABLISHMENT. PLANTS SHALL RECEIVE A MINIMUM OF APPROXIMATELY ONE INCH OF WATER EVERY WEEK DURING THE DRY SEASON (GENERALLY JUNE 15TH - OCTOBER 15TH, OR EARLIER OR LATER IF CONDITIONS WARRANT) FOR THE FIRST SEASON AFTER PLANTING. IRRIGATION AMOUNTS MAY NEED TO BE INCREASED DURING PROLONGED PERIODS OF HOT, DRY WEATHER.
5. IN THE BUFFER AREAS ONLY, FERTILIZE ALL TREES AND SHRUBS WITH A SLOW-RELEASE GENERAL PURPOSE GRANULAR FERTILIZER OR SLOW-RELEASE TABLETS AT MANUFACTURER'S SPECIFIED RATE. NO FERTILIZER SHALL BE APPLIED WITHIN WETLAND AREAS.
6. IN THE BUFFER AREAS ONLY, A SOIL MOISTURE RETENTION AGENT, SUCH AS "SOILMOIST" OR EQUAL, SHALL BE INCORPORATED INTO THE BACKFILL OF EACH PLANTING PIT, PER MANUFACTURER'S INSTRUCTIONS. NO MOISTURE RETENTION AGENT SHALL BE APPLIED WITHIN WETLAND AREAS.

PLANTING DENSITY TABLES

ZONE 1: PLANTING DENSITY TABLE - WETLAND E

	REQUIRED	DESIGNED
PLANTED AREA	28,776 SF	
TREES 9' O.C.*	0	0
SHRUBS 6' O.C.	805	941
GROUNDCOVER 2' O.C.**	7,194/ 28,776 SF	7,194/ 258,776 SF

* PER CITY OF ISSAQUAH, NO TREES WILL BE PLANTED WITHIN STORMWATER EASEMENTS.

** GRASS SEED MIXED BE AT 100% COVERAGE

ZONE 2: PLANTING DENSITY TABLE - WETLAND E BUFFER

	REQUIRED	DESIGNED
PLANTED AREA	13,025 SF	
TREES 9' O.C.*	0	0
SHRUBS 6' O.C. (FULL COVERAGE)	361	743
GROUNDCOVER 2' O.C.** (50% COVERAGE)	1,628/ 6,513 SF	1,628/ 6,513 SF

* PER CITY OF ISSAQUAH, NO TREES WILL BE PLANTED WITHIN STORMWATER EASEMENTS.

** GRASS SEED MIXED BE AT 100% COVERAGE

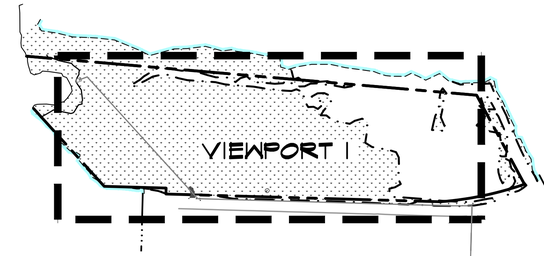
ZONE 3: PLANTING DENSITY TABLE - TIBBETTS CREEK BUFFER

	REQUIRED	DESIGNED
PLANTED AREA	26,154 SF	
TREES 9' O.C.*	0	8
SHRUBS 6' O.C.	724	1,523
GROUNDCOVER 2' O.C.	6,539	7,455

* EXTENSIVE OVERHEAD AND UNDERGROUND UTILITIES IN THIS AREA PREVENT THE USE OF LARGE TREES ON WITHIN MUCH OF THE RESTORED BUFFER. CONIFERS WILL BE PLACED IN THE FIELD IN A LIMITED FASHION.

PLANT COMMUNITIES LEGEND

ZONE 1 (WETLAND E RESTORATION; SCRUB-SHRUB WETLAND)	28,776 SF (0.66 AC.)
ZONE 2 (WETLAND E BUFFER RESTORATION; SCRUB-SHRUB AND UPLAND MEADOW)	13,025 SF (0.29 AC.)
ZONE 3 (TIBBETTS CREEK NORTHERN ENHANCEMENT AREA; SCRUB-SHRUB)	26,154 SF (0.60 AC.)
ZONE 4 (RESTORATION ENHANCEMENT OF EXISTING RESTORATION PLANTED AREAS) AREA OF MAINTENANCE ACCESS THROUGH VOLUNTEER PLANTING: 8,237 SF X 0.0277 (6' O.C.) = 228 X 3 3 WILLOW STAKES PER PLANTING TO INFILL AREAS WHERE EXISTING WILLOW STAKES ARE >10' O.C.	684 WILLOW STAKES



PLANT COMMUNITIES KEY
SCALE: 1"=120'

VIEWPORT 1: PLANT COMMUNITIES
SCALE: 1"=120'

VIEWPORT 2: PLANT COMMUNITIES
SCALE: 1"=120'

NOT FOR CONSTRUCTION

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NOTES

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2. SITE PLAN PROVIDED BY KPFF, 1601 5TH AVE SUITE 1600 SEATTLE, WA 98101 , (206) 622-5822.
3. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
4. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN MAY, 2021.

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PROJECT
HYLA CROSSING PUMPED STORMWATER DISCHARGE

ISSAQUAH, WA

OWNER
ROWLEY PROPERTIES
1595 NW GILMAN BLVD
ISSAQUAH WA, 98027

PROFESSIONAL SEAL

DESIGN TEAM	EP, AO
PRINCIPAL	BS
PROJECT MANAGER	EP
PROJECT ARCHITECT	EP
DRAWN BY	FH
CHECKED BY	EP

DRAWING SET DESCRIPTION
ASDP/SSDP/SV RESUBMITTAL

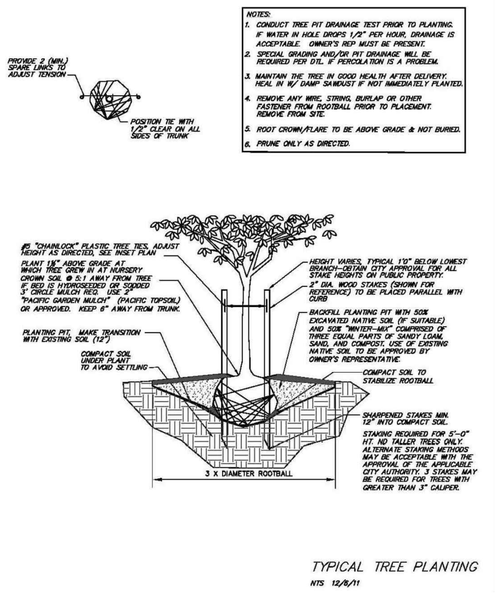
REVISIONS

No.	DATE	DESCRIPTION
1	10/3/2019	30% CD
2	4/1/2020	ASDP
3	4/12/2021	ASDP REVISION #1
4	9/8/2021	ASDP REVISION #2
5	4/12/2022	ASDP/SSDP/SV

SHEET TITLE
PLANT SCHEDULE & NOTES

SHEET NUMBER
W3.3

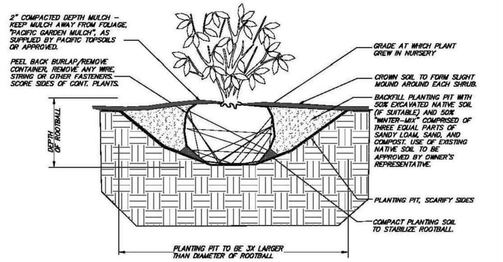
ISSUE DATE
4/12/2021



TYPICAL TREE PLANTING

NTS 12/8/11

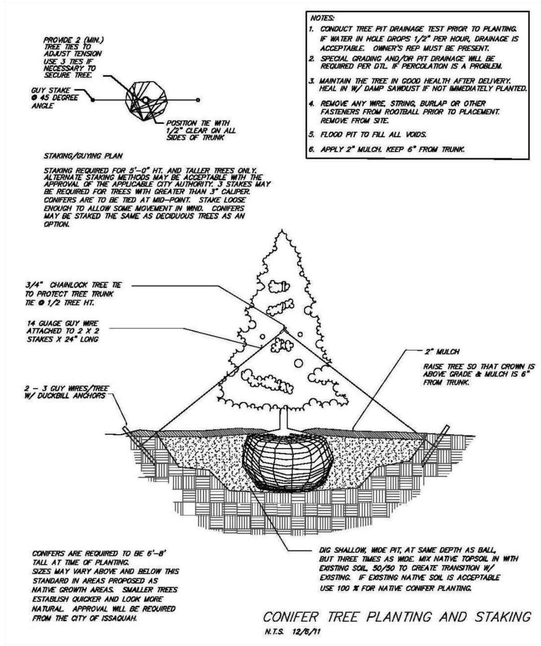
1 TYPICAL TREE PLANTING DETAIL
NOT TO SCALE



TYPICAL SHRUB PLANTING

NTS 12/8/17

2 TYPICAL SHRUB PLANTING DETAIL
NOT TO SCALE



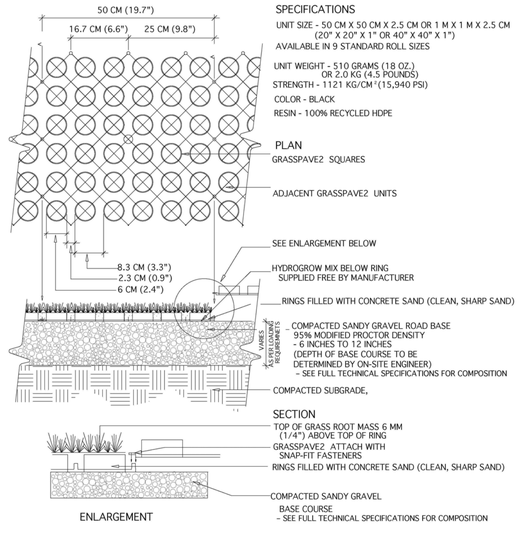
CONIFER TREE PLANTING AND STAKING

N.T.S. 12/8/11

3 TYPICAL CONIFER TREE PLANTING DETAIL
NOT TO SCALE

TYPICAL GRASSPAVE2 DETAIL

CHOOSE THIS PRODUCT FOR REINFORCING GRASS WEARING SURFACES



SPECIFICATIONS

UNIT SIZE - 50 CM X 50 CM X 2.5 CM OR 1 M X 1 M X 2.5 CM (20" X 20" X 1" OR 40" X 40" X 1")
AVAILABLE IN 9 STANDARD ROLL SIZES

UNIT WEIGHT - 510 GRAMS (18 OZ.) OR 2.0 KG (4.5 POUNDS)
STRENGTH - 1121 KG/CM²(15,940 PSI)
COLOR - BLACK
RESIN - 100% RECYCLED HDPE

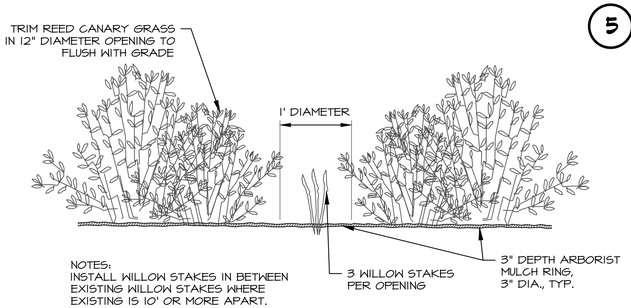
PLAN
- GRASSPAVE2 SQUARES
- ADJACENT GRASSPAVE2 UNITS
- SEE ENLARGEMENT BELOW
- HYDROGROW MIX BELOW RING SUPPLIED FREE BY MANUFACTURER
- RINGS FILLED WITH CONCRETE SAND (CLEAN, SHARP SAND)
- COMPACTED SANDY GRAVEL ROAD BASE 95% MODIFIED PROCTOR DENSITY - 6 INCHES TO 12 INCHES (DEPTH OF BASE COURSE TO BE DETERMINED BY ON-SITE ENGINEER) - SEE FULL TECHNICAL SPECIFICATIONS FOR COMPOSITION
- COMPACTED SUBGRADE,

SECTION
- TOP OF GRASS ROOT MASS 6 MM (1/4") ABOVE TOP OF RING
- GRASSPAVE2 ATTACH WITH SNAP-FIT FASTENERS
- RINGS FILLED WITH CONCRETE SAND (CLEAN, SHARP SAND)
- COMPACTED SANDY GRAVEL BASE COURSE - SEE FULL TECHNICAL SPECIFICATIONS FOR COMPOSITION

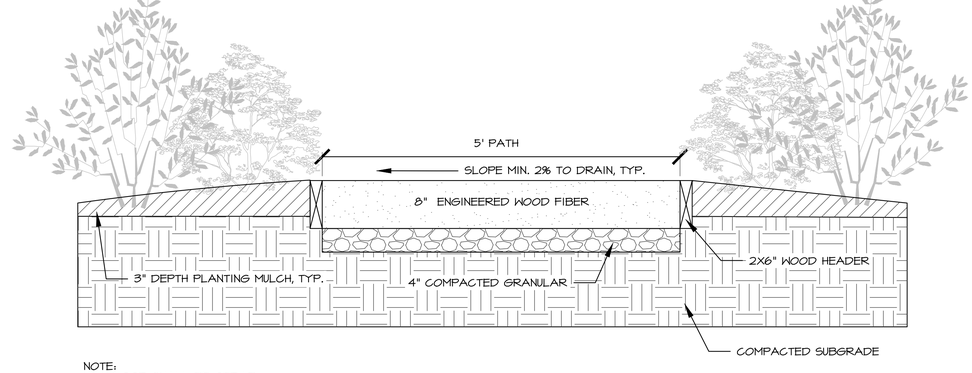
NOTE: GRASS/PLANT TYPES SHALL BE SPECIFIED BY A LANDSCAPE ARCHITECT OR LANDSCAPE DESIGNER.

GRASSPAVE²
3 NOT TO SCALE

NOTE: 6" COMPACTED BASE COURSE PER MANUFACTURER RECOMMENDATION



4 WILLOW STAKES
NOT TO SCALE



NOTE:
1. WOOD SHALL BE CEDAR
2. ALL FASTENERS SHALL BE STAINLESS STEEL
3. ENSURE TRAIL IS COMPACTED ADEQUATELY TO PREVENT SETTLEMENT AND PONDING
4. ENSURE ENGINEERED WOOD FIBER (EWF) IS UNTREATED. SAMPLE AND MATERIALS DATA MUST BE SUBMITTED FOR REVIEW TO CONSULTANT

5 ENGINEERED WOOD FIBER ADA COMPLIANT TRAIL SURFACE DETAIL
N.T.S.

NOT FOR CONSTRUCTION

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PROJECT
HYLA CROSSING PUMPED STORMWATER DISCHARGE

ISSAQUAH, WA

OWNER
ROWLEY PROPERTIES
1595 NW GILMAN BLVD
ISSAQUAH WA, 98027

PROFESSIONAL SEAL

DESIGN TEAM: EP, AO
PRINCIPAL: BS
PROJECT MANAGER: EP
PROJECT ARCHITECT: EP
DRAWN BY: FH
CHECKED BY: EP

DRAWING SET DESCRIPTION
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REVISIONS

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5	4/12/2022	**ASDP/SSDP/SV**

SHEET TITLE
PLANTING DETAILS

SHEET NUMBER
W3.4

ISSUE DATE
4/12/2021

Apr 13, 2022 - 3:39pm rhuynh
Xref Filenames: \ XS-SUR-16 \ x-hcpsd-sv \ X-HCPSD-CON-STG \ x-hcpsd-sd PF \ X-HCPSD-SP \ x-hcpsd-sp-fut \ X-HCPSD-UT \ X-RPW-BLDG \ X-RPW-SD \ X-RPW-SP \ X-RPW-UT \ x-hcpsd-Hbb \ X-HCPSD-TTLB-24X36 \ HCPSD-TTLB-24X36 \ HCPSD-CONTOURS \ x-hcpsd-sd \ chose \ 1775 - EWF Detail \ ENH AREA \
Z:\DRAWING\1700-1799\TAL1775\Plans\TAL-1775 WP 2022-04-EP.dwg

PLANTING SPECIFICATIONS

PART 1: GENERAL

1.1 SEQUENCING

A. GENERAL CONSTRUCTION

1. CONTRACTOR SHALL GIVE THE PROJECT BIOLOGIST OR ECOLOGIST A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO COMMENCING CONSTRUCTION.
2. NO CONSTRUCTION WORK SHALL COMMENCE UNTIL THERE IS A MEETING BETWEEN THE CLIENT, THE PROJECT BIOLOGIST OR ECOLOGIST, THE GENERAL, CLEARING, AND/OR EARTHWORK CONTRACTORS, AND THE LANDSCAPE CONTRACTOR. THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REVIEWED TO ENSURE THAT ALL PARTIES INVOLVED UNDERSTAND THE INTENT AND THE SPECIFIC DETAILS RELATED TO THE CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONSTRAINTS.
3. LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO: (1) INDEPENDENTLY VERIFY THE ACCURACY OF UTILITY LOCATIONS, AND (2) DISCOVER AND AVOID ANY UTILITIES WITHIN THE MITIGATION AREA(S) THAT ARE NOT SHOWN, BUT WHICH MAY BE AFFECTED BY IMPLEMENTATION OF THE PLAN. SUCH AREA(S) ARE TO BE CLEARLY MARKED IN THE FIELD. THE PROJECT BIOLOGIST OR ECOLOGIST SHALL RESOLVE ANY CONFLICTS WITH THE APPROVED GRADING PLAN PRIOR TO START OF CONSTRUCTION.
4. A COPY OF THE APPROVED PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS, AND SHALL REMAIN ON SITE UNTIL PROJECT COMPLETION.
5. CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH ALL AGENCY STANDARDS, RULES, CODES, PERMIT CONDITIONS, AND/OR OTHER APPLICABLE ORDINANCES AND POLICIES.
6. THE PROJECT OWNER/APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER RELATED OR REQUIRED PERMITS PRIOR TO THE START OF CONSTRUCTION.
7. A QUALIFIED WETLAND CONSULTANT SHALL BE ON SITE, AS NECESSARY, TO MONITOR CONSTRUCTION AND APPROVE MINOR REVISIONS TO THE PLAN.
8. DURING CONSTRUCTION, THE CONTRACTOR MUST USE MATERIALS AND CONSTRUCTION METHODS THAT PREVENT TOXIC SUBSTANCES AND OTHER POLLUTANTS FROM ENTERING MITIGATION AREAS OR OTHER NATURAL WATERS OF THE STATE.
9. PREVENTATIVE MEASURES SHALL BE USED TO PROTECT EXISTING STORM DRAINAGE SYSTEMS, EXISTING UTILITIES, AND ROADS.
10. PROVIDE SEDIMENT AND EROSION CONTROLS AROUND THE PROJECT AREA PRIOR TO SOIL DISTURBANCE FROM CONSTRUCTION ACTIVITY.

B. MITIGATION CONSTRUCTION: THE FOLLOWING PROVIDES THE GENERAL SEQUENCE OF ACTIVITIES ANTICIPATED TO BE NECESSARY TO COMPLETE THE PLANTING PORTION OF THE MITIGATION PROJECT. SOME OF THESE ACTIVITIES MAY BE CONDUCTED CONCURRENTLY AS THE PROJECT PROGRESSES.

1. CONDUCT A SITE MEETING BETWEEN THE CONTRACTOR, THE PROJECT BIOLOGIST OR ECOLOGIST, AND THE OWNER'S REPRESENTATIVE TO REVIEW THE PROJECT PLANS, STAGING/STOCKPILE AREAS, AND MATERIAL DISPOSAL AREAS.
2. PLANT TREES AND SHRUBS AS INDICATED ON MITIGATION PLANS.
3. PLANT STAKES (CUTTINGS).
4. MULCH NEWLY INSTALLED PLANTS.
5. INSTALL TEMPORARY IRRIGATION SYSTEM AND PROGRAM FOR 0.5 INCHES OF WATER EVERY 3 DAYS.
6. INSTALL FENCING AND CRITICAL AREA PROTECTION SIGNS.

1.2 SUBMITTALS

A. PRODUCT DATA: FURNISH THE FOLLOWING WITH EACH PLANT MATERIAL DELIVERY:

1. INVOICES INDICATING SIZES AND VARIETY OF PLANT MATERIAL.
2. CERTIFICATES OF INSPECTION REQUIRED BY STATE AND FEDERAL AGENCIES.

B. QUALITY CONTROL SUBMITTALS:

1. PRIOR TO DELIVERY OF MATERIALS, CERTIFICATES OF COMPLIANCE ATTESTING THAT MATERIALS MEET THE SPECIFIED REQUIREMENTS SHALL BE FURNISHED FOR THE FOLLOWING: PLANTS, TOPSOIL, FERTILIZER, AND ORGANIC MULCH. CERTIFIED COPIES OF THE MATERIAL CERTIFICATES SHALL INCLUDE THE FOLLOWING:
   a. PLANT MATERIALS: BOTANICAL NAME, COMMON NAME, SIZE, QUANTITY BY SPECIES, AND LOCATION WHERE GROWN.
   b. IMPORTED TOPSOIL: PARTICLE SIZE, PH, ORGANIC MATTER CONTENT, TEXTURAL CLASS, SOLUBLE SALTS, CHEMICAL AND MECHANICAL ANALYSES.
   c. FERTILIZER: CHEMICAL ANALYSIS AND PERCENT COMPOSITION.
   d. IMPORTED MULCH: COMPOSITION AND SOURCE.

1.3 REFERENCES

A. SIZE AND GRADING STANDARDS: SHALL CONFORM TO THE CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.

1.4 QUALITY ASSURANCE

A. WORKER'S QUALIFICATIONS: THE PERSONS PERFORMING THE PLANTING AND THEIR SUPERVISOR(S) SHALL BE PERSONALLY EXPERIENCED WITH PLANTING AND CARING FOR PLANT MATERIAL, AND SHALL HAVE BEEN REGULARLY EMPLOYED BY A COMPANY ENGAGED IN PLANTING AND CARING FOR PLANT MATERIAL FOR A MINIMUM OF 2 YEARS.

B. PLANT MATERIAL: ALL PLANT MATERIALS SHALL BE LOCALLY GROWN OR REGIONALLY ACCLIMATIZED TO THE PACIFIC NORTHWEST.

1.5 DELIVERY, INSPECTION, STORAGE AND HANDLING

A. DELIVERY: A DELIVERY SCHEDULE SHALL BE PROVIDED AT LEAST 10 CALENDAR DAYS PRIOR TO THE FIRST DAY OF DELIVERY. PLANT MATERIALS SHALL BE DELIVERED TO THE JOB SITE NOT MORE THAN 7 WORKING DAYS PRIOR TO THEIR RESPECTIVE PLANTING DATES.

B. PROTECTION DURING DELIVERY: PLANT MATERIAL SHALL BE PROTECTED DURING DELIVERY TO PREVENT DESICCATION AND DAMAGE TO THE BRANCHES, TRUNK, ROOT SYSTEM, OR EARTH BALL. BRANCHES SHALL BE PROTECTED BY TYING-IN. EXPOSED BRANCHES SHALL BE COVERED DURING TRANSPORT.

C. FERTILIZER: FERTILIZER SHALL BE DELIVERED IN MANUFACTURER'S STANDARD SIZED BAGS SHOWING WEIGHT, ANALYSIS, AND MANUFACTURER'S NAME. STORE UNDER A WATERPROOF COVER OR IN A DRY PLACE AS DESIGNATED BY THE OWNER'S REPRESENTATIVE.

D. INSPECTION: ALL PLANT MATERIALS SHALL BE INSPECTED UPON ARRIVAL AT THE JOB SITE BY THE OWNER'S REPRESENTATIVE FOR CONFORMITY TO TYPE AND QUANTITY WITH REGARD TO THEIR RESPECTIVE SPECIFICATIONS.

E. MULCH: A MULCH SAMPLE SHALL BE INSPECTED BY THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO THE MULCH BEING DELIVERED TO THE SITE.

F. STORAGE:

1. PLANT MATERIAL NOT INSTALLED ON THE DAY OF ARRIVAL AT THE SITE SHALL BE STORED AND PROTECTED IN DESIGNATED AREAS. PLANTS STORED ON THE PROJECT SITE SHALL BE PROTECTED FROM EXTREME WEATHER CONDITIONS BY INSULATING THE ROOTS, ROOT BALLS OR CONTAINERS WITH SAWDUST, SOIL, COMPOST, BARK OR WOODCHIPS. PLANT MATERIAL SHALL BE PROTECTED FROM DIRECT EXPOSURE TO WIND AND SUN. BARE-ROOT PLANT MATERIAL SHALL BE HEELED-IN. CUTTINGS AND EMERGENT PLANTS MUST BE PROTECTED FROM DRYING AT ALL TIMES AND SHALL BE HEELED-IN WITH MOIST SOIL OR OTHER INSULATING MATERIAL. ALL PLANT MATERIAL STORED ON-SITE SHALL BE WATERED DAILY UNTIL INSTALLED.
2. STORAGE OF OTHER MATERIALS SHALL BE IN DESIGNATED AREAS.

1.6 SCHEDULING

A. PLANTING SEASON: INSTALL WOODY PLANTS BETWEEN OCTOBER 1 AND FEBRUARY 15 WHENEVER THE TEMPERATURE IS ABOVE 32 DEGREES F AND THE SOIL IS IN A WORKABLE CONDITION, UNLESS OTHERWISE APPROVED IN WRITING. CUTTINGS SHALL ONLY BE USED IF PLANTING OCCURS BETWEEN DECEMBER 1ST AND APRIL 1ST.

B. PLANT INSTALLATION: EXCEPT FOR CONTAINER-GROWN PLANT MATERIAL, THE MAXIMUM TIME BETWEEN THE DIGGING AND INSTALLATION OF PLANT MATERIAL SHALL BE 21 DAYS. THE MAXIMUM TIME BETWEEN PLANT INSTALLATION AND MULCH PLACEMENT SHALL BE 72 HOURS.

1.7 WARRANTY

A. WARRANTY PERIOD: THE CONTRACTOR-PROVIDED WARRANTY SHALL EXTEND FOR A PERIOD OF ONE YEAR FROM THE DATE OF PHYSICAL COMPLETION. PHYSICAL COMPLETION FOR THE WORK OF THIS SECTION IS THE DATE WHEN ALL GRADING, PLANTING, IRRIGATION, AND RELATED WORK HAS BEEN COMPLETED AND IS ACCEPTED BY THE OWNER'S REPRESENTATIVE, THE PROJECT BIOLOGIST OR ECOLOGIST, AND APPLICABLE AGENCIES.

B. WARRANTY TERMS: CONTRACTOR'S WARRANTY SHALL INCLUDE REPLACEMENT OF PLANTS DUE TO MORTALITY (SAME SIZE AND SPECIES SHOWN ON THE DRAWINGS). PLANTS REPLACED UNDER THIS WARRANTY SHALL BE WARRANTED FOR AN ADDITIONAL YEAR AFTER REPLACEMENT.

C. EXCEPTIONS: LOSS DUE TO EXCESSIVELY SEVERE CLIMATOLOGICAL CONDITIONS (SUBSTANTIATED BY 10-YEAR RECORDED WEATHER CHARTS), OR CASES OF NEGLECT BY OWNER, OR CASES OF ABUSE/DAMAGE BY OTHERS.

PART 2: PRODUCTS AND MATERIALS

2.1 PLANTS

A. GENERAL: ALL PLANT MATERIAL WILL CONFORM TO THE VARIETIES SPECIFIED OR SHOWN IN THE PLANT LIST(S) INDICATED ON THE MITIGATION PLANS AND BE TRUE TO BOTANICAL NAME AS LISTED IN: HITCHCOCK, C.L., AND A. CRONQUIST. 1973. FLORA OF THE PACIFIC NORTHWEST. UNIVERSITY OF WASHINGTON PRESS.

B. SHRUBS AND TREES:

1. THE PROJECT BIOLOGIST OR ECOLOGIST SHALL EXAMINE PLANT MATERIAL PRIOR TO PLANTING. ANY MATERIAL NOT MEETING THE REQUIRED SPECIFICATIONS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND REPLACED WITH LIKE MATERIAL THAT MEETS THE REQUIRED STANDARDS. PLANT MATERIAL SHALL MEET THE REQUIREMENTS OF STATE AND FEDERAL LAWS WITH RESPECT TO PLANT DISEASE AND INFESTATIONS. INSPECTION CERTIFICATES, REQUIRED BY LAW, SHALL ACCOMPANY EACH AND EVERY SHIPMENT AND SHALL BE SUBMITTED TO THE PROJECT BIOLOGIST OR ECOLOGIST UPON CONTRACTOR'S RECEIPT OF PLANT MATERIAL.
2. PLANT MATERIALS SHALL BE LOCALLY GROWN (WESTERN WASHINGTON, WESTERN OREGON, OR WESTERN BC), HEALTHY, BUSHY, IN VIGOROUS GROWING CONDITION, AND GUARANTEED TO BE TRUE TO SIZE, NAME, AND VARIETY. IF REPLACEMENT OF PLANT MATERIAL IS NECESSARY DUE TO CONSTRUCTION DAMAGE OR PLANT FAILURE WITHIN ONE YEAR OF INSTALLATION, THE SIZES, SPECIES, AND QUANTITIES SHALL BE EQUAL TO SPECIFIED PLANTS, AS INDICATED ON THE PLANS.
3. PLANTS SHALL BE NURSERY GROWN, WELL-ROOTED, OF NORMAL GROWTH AND CHARACTER, AND FREE FROM DISEASE OR INFESTATION. THE PROJECT BIOLOGIST OR ECOLOGIST RESERVES THE RIGHT TO REQUIRE REPLACEMENT OR SUBSTITUTION OF ANY PLANTS DEEMED UNSUITABLE.
4. TREES SHALL HAVE UNIFORM BRANCHING, SINGLE STRAIGHT TRUNKS (UNLESS SPECIFIED AS MULTI-STEM, MULTI-CANE, OR MULTI-TRUNK), AND AN INTACT AND UNDAMAGED CENTRAL LEADER. CONTAINER STOCK SHALL HAVE BEEN GROWN IN A CONTAINER FOR AT LEAST ONE FULL GROWING SEASON AND SHALL HAVE A WELL DEVELOPED ROOT SYSTEM. PLANT MATERIAL THAT IS ROOT-BOUND OR HAS DAMAGED ROOT ZONES OR BROKEN ROOT BALLS WILL NOT BE ACCEPTED.
5. CONIFEROUS TREES SHALL BE NURSERY GROWN, FULL AND BUSHY, WITH UNIFORM BRANCHING AND A NATURAL, NON-SHEARED FORM. ORIGINAL CENTRAL LEADER MUST BE HEALTHY AND UNDAMAGED. MAXIMUM GAP BETWEEN BRANCHING SHALL NOT EXCEED 9 INCHES, AND LENGTH OF TOP LEADER SHALL NOT EXCEED 12 INCHES.
6. SHRUBS SHALL HAVE A MINIMUM OF THREE STEMS AND SHALL BE A MINIMUM HEIGHT OF 18 INCHES.
7. TREES AND SHRUBS SHALL HAVE DEVELOPED ROOT AND BRANCH SYSTEMS. DO NOT PRUNE BRANCHES BEFORE DELIVERY.
8. NATIVE PLANT CUTTINGS SHALL BE GROWN AND COLLECTED IN THE MARITIME PACIFIC NORTHWEST. CUTTINGS SHALL BE OF ONE TO TWO-YEAR-OLD WOOD, ½ INCH DIAMETER MINIMUM. CUTTINGS SHALL BE A MINIMUM OF 4 FEET IN LENGTH WITH 4 LATERAL BUDS EXPOSED ABOVE GROUND AFTER PLANTING. THE TOP OF EACH CUTTING SHALL BE A MINIMUM OF 1 INCH ABOVE A LEAF BUD, THE BOTTOM CUT 2 INCHES BELOW A BUD. THE BASAL ENDS OF THE CUTTINGS SHALL BE CUT AT A 45 DEGREE ANGLE AND MARKED CLEARLY SO THAT THE ROOTING END IS PLANTED IN THE SOIL. CUTTINGS MUST BE KEPT COVERED AND MOIST DURING STORAGE AND TRANSPORT, AND NO CUTTINGS SHALL BE STORED MORE THAN THREE DAYS FROM DATE OF CUTTING. CUTTINGS SHALL ONLY BE USED IF PLANTING OCCURS BETWEEN DECEMBER 1ST AND APRIL 1ST. FOR PLANTING BETWEEN APRIL 1ST AND DECEMBER 1ST, CONTAINER PLANTS SHALL BE USED.
9. PLANTS SHALL BE FREE OF SPLITS AND CHECKS, BARK ABRASIONS, AND DISFIGURING KNOTS.
10. FOR DECIDUOUS PLANTS, BUDS SHALL BE INTACT AND REASONABLY CLOSED AT TIME OF PLANTING, IF DORMANT.
11. BALLED AND BURLAPPED PLANTS SHALL HOLD A NATURAL BALL. MANUFACTURED ROOT BALLS ARE UNACCEPTABLE.
12. PLANTS SHALL CONFORM TO SIZES INDICATED ON THE PLANT SCHEDULE. PLANTS MAY BE LARGER THAN THE MINIMUM SIZES SPECIFIED.

C. SEED MIXES:

1. SEED MIXES SHALL BE PROVIDED AS DESCRIBED IN THE PLANT SCHEDULE.

D. NOXIOUS SPECIES: ALL PLANT STOCK AND OTHER RE-VEGETATION MATERIALS SHALL BE FREE FROM THE SEED OR OTHER PLANT COMPONENTS OF ANY NOXIOUS OR INVASIVE SPECIES, AS IDENTIFIED BY THE KING COUNTY NOXIOUS WEED CONTROL BOARD.

E. SUBSTITUTIONS: SUBSTITUTIONS WILL NOT BE PERMITTED WITHOUT A WRITTEN REQUEST AND APPROVAL FROM THE OWNER'S REPRESENTATIVE, THE PROJECT BIOLOGIST OR ECOLOGIST, AND APPLICABLE AGENCIES.

2.2 PLANTING SOIL

A. TOPSOIL: IF SUITABLE STOCKPILED NATIVE TOPSOIL IS NOT AVAILABLE FOR MITIGATION PLANTINGS, TOPSOIL SHALL BE OBTAINED FROM OUTSIDE SOURCES. STOCKPILED OR IMPORTED TOPSOIL SHALL BE FERTILE, FRIABLE, SANDY LOAM SURFACE SOIL, FREE OF SUBSOIL, CLAY LUMPS, BRUSH, WEEDS, ROOTS, STUMPS, STONES LARGER THAN 1 INCH IN ANY DIMENSION, LITTER, OR ANY OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH.

B. ORGANIC CONTENT: IMPORTED TOPSOIL SHALL CONSIST OF ORGANIC MATERIALS AMENDED AS NECESSARY TO PRODUCE A BULK ORGANIC CONTENT OF AT LEAST 10 PERCENT AND NOT GREATER THAN 20 PERCENT, AS DETERMINED BY AASHTO-T-194.

C. COMPOST: COMPOST SHALL MEET THE DEFINITION FOR COMPOSTED MATERIALS AS DEFINED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

D. SOIL AMENDMENTS (BUFFER AREAS ONLY):

D.A. FERTILIZER: WOODY PLANTINGS SHALL BE FERTILIZED WITH A SLOW-RELEASE GENERAL GRANULAR FERTILIZER (16-16-16), WITH APPLICATION RATES AS SPECIFIED BY MANUFACTURER. FERTILIZER SHALL BE APPLIED AFTER PLANTING PIT IS BACKFILLED, AND PRIOR TO APPLICATION OF MULCH. FERTILIZER SHALL NOT BE APPLIED BETWEEN NOVEMBER AND MARCH. NO FERTILIZER SHALL BE APPLIED WITHIN WETLAND AREAS.

D.B. SOIL MOISTURE RETENTION AGENT: A SOIL MOISTURE RETENTION AGENT, SUCH AS "SOILMOIST" OR EQUAL, SHALL BE INCORPORATED INTO THE BACKFILL OF EACH PLANTING PIT, PER MANUFACTURER'S INSTRUCTIONS. NO MOISTURE RETENTION AGENT SHALL BE APPLIED WITHIN WETLAND AREAS.

2.3 MULCH

A. ARBORIST WOOD CHIPS MUST BE COARSE GROUND WOOD CHIPS (APPROXIMATELY ½ INCH TO 6 INCHES ALONG THE LONGEST DIMENSION, NO PARTICLES TO BE GREATER THAN 8 INCHES LENGTH) DERIVED FROM THE MECHANICAL GRINDING OR SHREDDING OF THE ABOVE-GROUND PORTIONS OF TREES. IT MAY CONTAIN WOOD, WOOD FIBER, BARK, BRANCHES, AND LEAVES; BUT MAY NOT CONTAIN VISIBLE AMOUNTS OF SOIL. IT MUST BE FREE OF WEEDS AND WEED SEEDS INCLUDING COUNTY AND STATE LISTED NOXIOUS WEEDS AND MUST BE FREE OF INVASIVE PLANT PORTIONS CAPABLE OF RESPROUTING, INCLUDING BUT NOT LIMITED TO HORSETAIL, IVY, CLEMATIS, AND KNOTWEED. IT MAY NOT CONTAIN MORE THAN ½ PERCENT BY WEIGHT OF MANUFACTURED INERT MATERIAL (SUCH AS PLASTIC, CONCRETE, CERAMICS, OR METAL).

B. ARBORIST WOOD CHIP MULCH, WHEN TESTED, MUST MEET THE FOLLOWING LOOSE VOLUME GRADATION:

95%-100% FOR 2"

0%-100% FOR 1"

0%-50% FOR 5/8"

0%-40% FOR 1/4"

C. NO PARTICLES MAY BE LONGER THAN 8 INCHES.

D. PRIOR TO DELIVERY, THE CONTRACTOR MUST PROVIDE THE FOLLOWING UPON REQUEST:

D.1. THE SOURCE OF THE PRODUCT AND SPECIES OF TREES INCLUDED IN IT

D.2. A SIEVE ANALYSIS VERIFYING THE PRODUCT MEETS THE ABOVE SIZE GRADATION REQUIREMENT.

D.3. A 5 GALLON SAMPLE OF THE PRODUCT, FOR THE PROJECT ECOLOGIST/LANDSCAPE ARCHITECT'S APPROVAL.

E. ALL MULCHES USED IN PLANTER BEDS SHALL BE FEATHERED TO THE BASE OF THE PLANTS AND KEPT AT LEAST SIX (6) INCHES AWAY FROM THE CROWNS OF SHRUBS OR TRUNKS OF TREES.

2.4 MISCELLANEOUS MATERIALS

A. STAKES, DEADMEN AND GUY STAKES: SOUND, DURABLE, WESTERN RED CEDAR, OR OTHER APPROVED WOOD, FREE OF INSECT OR FUNGUS INFESTATION.

B. CHAIN-LOCK TREE TIES: ½-INCH WIDE, PLASTIC.

PART 3: EXECUTION

3.1 SOIL PREPARATION

A. PLANTING AREA CONDITIONS: CONTRACTOR SHALL VERIFY THAT PLANT INSTALLATION CONDITIONS ARE SUITABLE WITHIN THE PROJECT AREA(S). ANY UNSATISFACTORY CONDITIONS SHALL BE CORRECTED PRIOR TO START OF WORK. WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, POOR DRAINAGE, COMPACTED SOILS, SIGNIFICANT EXISTING OR INVASIVE VEGETATION, OR OTHER OBSTRUCTIONS, CONTRACTOR SHALL NOTIFY THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO PLANTING. THE BEGINNING OF WORK BY THE CONTRACTOR CONSTITUTES ACCEPTANCE OF CONDITIONS AS SATISFACTORY.

B. PLANTING IN GRADED AREAS: REFERENCE DEVELOPER'S AGREEMENT, APPENDIX G FOR PLANTING DETAILS.

C. SOIL DECOMPACTION/SCARIFICATION: SOILS IN GRADED/DISTURBED AREAS THAT ARE COMPACTED AND UNSUITABLE FOR PROPER PLANT GROWTH SHALL BE DECOMPACTED AND/OR SCARIFIED TO A MINIMUM DEPTH OF 6-INCHES PRIOR TO TOPSOIL INSTALLATION.

3.2 PLANTING

A. PLANT LAYOUT: PROPOSED LOCATIONS OF TREES AND SHRUBS SHALL BE STAKED AND IDENTIFIED WITH AN APPROVED CODING SYSTEM OR BY PLACEMENT OF THE ACTUAL PLANT MATERIAL. FOR LARGE GROUPINGS OF A SINGLE SPECIES OF SHRUB, LANDSCAPE CONTRACTOR MAY STAKE THE PLANTING BOUNDARIES.

B. OBTAIN LAYOUT APPROVAL FROM THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO EXCAVATION OF PLANTING PITS.

C. PLANTING PIT DIMENSIONS:

1. PIT DEPTH: NOT TO EXCEED THE ROOT BALL OR CONTAINER DEPTH.
2. PIT WIDTH: MEASURED AT THE GROUND SURFACE, 2 TIMES THE WIDTH OF THE ROOT BALL OR CONTAINER, AS INDICATED IN TYPICAL PLANTING DETAILS.

A. SETTING PLANTS:

1. BALLED PLANTS: SET PLANTS IN POSITION AND BACKFILL 1/2 DEPTH OF BALL. COMPLETELY REMOVE CAGE AND TWINE FROM PLANT AND PULL BURLAP DOWN AS FAR AS POSSIBLE. COMPLETE BACKFILL AND SETTLE WITH WATER. ROOT COLLAR SHALL REMAIN 1 INCH ABOVE ADJACENT GRADE.
2. SHRUB/TREE PLANTING: SHRUB AND TREE STOCK SHALL BE PLANTED IN HAND-DUG HOLES ACCORDING TO PLANTING DETAILS SHOWN ON THE MITIGATION PLANS. SHRUB AND TREE ROOT BALLS SHALL BE SET SO THAT ROOT COLLARS ARE 1 INCH ABOVE ADJACENT GRADE. ALL BACKFILL SHALL BE GENTLY TAMPED IN PLACE.
3. SURFACE FINISH: FORM A SAUCER AS INDICATED ON TYPICAL PLANTING DETAILS, OR AS DIRECTED. GRADE SOIL TO FORM A BASIN ON THE LOWER SIDE OF SLOPE PLANTINGS TO CATCH AND RETAIN WATER.
4. ACTUAL PLANT SYMBOL QUANTITIES SHOWN ON THE PLANS SHALL PREVAIL OVER QUANTITIES SHOWN ON THE PLANT SCHEDULE IN THE EVENT OF A DISCREPANCY.

B. MULCHING:

1. GRADED BUFFER AREAS: ARE MULCHED PRIOR TO PLANT INSTALLATION AS DIRECTED IN THE GRADING SPECIFICATIONS.
2. WATER PLANTS THOROUGHLY AFTER MULCHING.

F. PRUNING: PRUNE IMMEDIATELY AFTER PLANTING ONLY AS DIRECTED BY THE PROJECT BIOLOGIST OR ECOLOGIST.

G. TREE STAKES AND TIES: STAKE DECIDUOUS AND EVERGREEN TREES 4 FEET OR OVER IN HEIGHT WITH ONE (1) STAKE PER TREE. STAKE TREES IMMEDIATELY AFTER PLANTING. PLACE STAKE AT THE OUTER EDGE OF THE ROOTS OR BALL, IN LINE WITH THE PREVAILING WIND, AND AT A 10 DEGREE ANGLE FROM THE TREE TRUNK. LOOSELY ATTACH STAKE TO TREE USING CHAIN-LOCK TIES; TREE SHOULD BE ABLE TO SWAY.

H. INSTALLING TEMPORARY IRRIGATION

1. GENERAL REQUIREMENTS: CONTRACTOR SHALL PROVIDE AN ABOVE-GROUND TEMPORARY IRRIGATION SYSTEM CAPABLE OF FULL HEAD-TO-HEAD COVERAGE OF ALL PLANTED PROJECT AREAS. THE TEMPORARY IRRIGATION SYSTEM SHALL EITHER UTILIZE CONTROLLER AND POINT OF CONNECTION (POC) FROM THE SITE IRRIGATION SYSTEM OR SHALL INCLUDE A SEPARATE POC AND CONTROLLER WITH A BACKFLOW PREVENTION DEVICE PER WATER JURISDICTION INSPECTION AND APPROVAL. THE SYSTEM SHALL BE ZONED TO PROVIDE OPTIMAL PRESSURE AND UNIFORMITY OF COVERAGE, AS WELL AS SEPARATION BETWEEN AREAS OF FULL SUN AND SHADE AND FOR SLOPES IN EXCESS OF 5 PERCENT. THE SYSTEM SHALL BE OPERATIONAL FOR A MINIMUM OF THE FIRST TWO GROWING SEASONS AFTER PLANTING (THE FIRST TWO YEARS OF THE PERFORMANCE MONITORING PERIOD), OR LONGER IF REQUIRED TO ENSURE PROPER PLANT ESTABLISHMENT. THE SYSTEM SHALL BE REMOVED UPON FINAL APPROVAL OF THE MITIGATION PROJECT AT THE END OF THE PERFORMANCE MONITORING PERIOD.
2. SYSTEM DESIGN AND MATERIALS: ELECTRONIC VALVES SHALL BE THE SAME MANUFACTURER AS THOSE USED FOR THE SITE IRRIGATION SYSTEM, OR SHALL BE RAIN BIRD PEB SERIES OR EQUAL IF SYSTEM IS NOT CONTIGUOUS WITH THE SITE SYSTEM. VALVES SHALL BE SIZED TO ACCOMMODATE PRESSURE AND ZONE CONSUMPTION REQUIREMENTS OF THE SYSTEM AND SHALL BE INSTALLED BELOW GRADE IN CARSON (OR EQUAL) VALVE BOXES. WIRING SHALL BE INSULATED MULTI-STRAND, TAPED TO THE MAIN AT 6-INCH INTERVALS WITH DUCT TAPE WRAPS. ON-GRADE MAIN AND LATERAL LINES SHALL BE CLASS 200 PVC BELL PIPE WITH SOLVENT WELDED FITTINGS, SECURED IN-PLACE WITH WIRE STAPLES WHERE NECESSARY ON SLOPED AREAS. LINES SHALL BE PLACED 12 INCHES BELOW GRADE IN 4 INCH PCV SLEEVES WHERE VEHICULAR OR MAINTENANCE ACCESS IS NEEDED ACROSS LINES TO THE PROJECT AREA(S). MAXIMUM MAIN LINE SIZE SHALL BE 1½ INCHES AND MAY BE LOOPED BACK TO THE POC TO REDUCE PRESSURE LOSS. LATERAL LINES SHALL BE SIZED IN DECREASING DOWNSTREAM ORDER PER RAIN BIRD DESIGN STANDARDS; THE MINIMUM LATERAL SIZE SHALL BE ¾ INCH. HEADS SHALL BE ROTOR OR IMPACT TYPE INSTALLED 4 FEET ABOVE FINISHED GRADE ON 2-INCH DIAMETER WOOD TREE STAKES. STAKES SHALL BE SECURE IN THE GROUND, EMBEDDED TO A MINIMUM DEPTH OF 24 INCHES. HEADS AND ¾ INCH PVC RISERS SHALL BE SECURED TO STAKES WITH CONSTRICTING HOSE CLAMPS; NO FUNNY PIPE SHALL BE USED. HEADS AND NOZZLES SHALL PROVIDE MATCHED PRECIPITATION RATES FOR EACH ZONE.
3. PROGRAMMING: IRRIGATION SYSTEM SHALL BE PROGRAMMED TO PROVIDE APPROXIMATELY 1/2 INCH OF WATER EVERY THREE DAYS DURING THE DRY SEASON (APPROXIMATELY JUNE 15TH TO OCTOBER 15TH). IRRIGATION AMOUNTS IN ZONES LOCATED IN THE SHADE OR ON STEEP SLOPES MAY BE REDUCED IF APPROVED BY THE PROJECT BIOLOGIST OR ECOLOGIST OR THE PROJECT ECOLOGIST/BIOLOGIST.
4. WATER AND POWER SUPPLY FOR SYSTEM: THE OWNER SHALL PROVIDE WATER AND ELECTRICITY FOR THE SYSTEM.
5. AS-BUILT DRAWING: A CHART DESCRIBING THE LOCATION OF ALL INSTALLED OR OPEN ZONES AND CORRESPONDING CONTROLLER NUMBERS SHALL BE PROVIDED BY THE CONTRACTOR AND PLACED INSIDE THE CONTROLLER AND GIVEN TO THE OWNER'S REPRESENTATIVE.
6. WARRANTY: THE IRRIGATION SYSTEM SHALL INCLUDE A ONE-YEAR WARRANTY AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FROM THE DATE OF FINAL PROJECT ACCEPTANCE. THE WARRANTY SHALL INCLUDE SYSTEM ACTIVATION AND WINTERIZATION FOR THE FIRST YEAR AND IMMEDIATE REPAIR OF THE SYSTEM IF IT IS OBSERVED TO BE MALFUNCTIONING.

J. CRITICAL AREAS FENCE AND SIGNS: INSTALL CRITICAL AREAS FENCE AND CRITICAL AREAS SIGNS WHERE SHOWN ON PLANS.

K. RESTORE EXISTING NATURAL OR LANDSCAPED AREAS:

1. EXISTING NATURAL OR LANDSCAPED AREAS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, UNLESS IMPROVEMENTS OR MODIFICATIONS ARE SPECIFIED FOR THOSE AREAS.
2. CONTRACTOR SHALL EXERCISE CARE TO PREVENT INJURY TO THE TRUNK, ROOTS, OR BRANCHES OF ANY TREES OR SHRUBS THAT ARE TO REMAIN. ANY LIVING, WOODY PLANT THAT IS DAMAGED DURING CONSTRUCTION SHALL BE TREATED WITHIN 24 HOURS OF OCCURRENCE, AND THE PROJECT BIOLOGIST OR ECOLOGIST SHALL BE NOTIFIED IMMEDIATELY OF THE INCIDENT. DAMAGE TREATMENT SHALL INCLUDE EVENLY CUTTING BROKEN BRANCHES, BROKEN ROOTS, AND DAMAGED TREE BARK. INJURED PLANTS SHALL BE THOROUGHLY WATERED AND ADDITIONAL MEASURES SHALL BE TAKEN, AS APPROPRIATE, TO AID IN PLANT SURVIVAL.

L. FINAL INSPECTION AND APPROVAL: THE CONTRACTOR SHALL NOTIFY THE PROJECT BIOLOGIST OR ECOLOGIST IN WRITING AT LEAST TEN DAYS PRIOR TO THE REQUESTED DATE OF A PROJECT COMPLETION INSPECTION. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED BY THE PROJECT BIOLOGIST OR ECOLOGIST AND SUBMITTED TO THE CONTRACTOR FOR COMPLETION. AFTER PUNCH LIST ITEMS HAVE BEEN COMPLETED, THE PROJECT BIOLOGIST OR ECOLOGIST SHALL REVIEW THE PROJECT AGAIN FOR FINAL ACCEPTANCE OF PLAN IMPLEMENTATION. IF PUNCH LIST ITEMS REQUIRE PLANT REPLACEMENT, AND THE INSPECTION OCCURS OUTSIDE OF A SUITABLE PLANTING SEASON, PLANTS SHALL BE REPLACED DURING THE NEXT PLANTING SEASON.

M. AS-BUILT PLAN: CONTRACTOR IS RESPONSIBLE FOR VERIFYING PLANT LOCATIONS AND QUANTITIES ON THE PLANT SCHEDULE WITH THOSE REPRESENTED AS SYMBOLS ON THE MITIGATION PLANS. CONTRACTOR SHALL KEEP A COMPLETE SET OF PRINTS AT THE JOB SITE DURING CONSTRUCTION FOR THE PURPOSE OF RECORDING IN-THE-FIELD CHANGES OR MODIFICATIONS TO THE APPROVED PLANS. THIS INFORMATION SHALL BE UPDATED ON A DAILY BASIS AS NECESSARY.

PART 4: ONE YEAR CONTRACTOR WARRANTY

NOTE: THESE MAINTENANCE SPECIFICATIONS APPLY TO THE ONE-YEAR CONTRACTOR WARRANTY PERIOD ONLY. IF THIS MITIGATION PROJECT REQUIRES LONG-TERM PERFORMANCE MONITORING, AS DETERMINED BY THE GOVERNING JURISDICTION, THE MAINTENANCE SPECIFICATIONS AND GUIDELINES ASSOCIATED WITH THE PERFORMANCE MONITORING STANDARDS ARE INCLUDED IN THE MITIGATION REPORT ASSOCIATED WITH THIS PLAN SET, AND MAY ALSO BE INCLUDED ON A SEPARATE PLAN SHEET IF REQUIRED.

A. REVIEW OF MAINTENANCE REQUIREMENTS: CONTRACTOR SHALL REVIEW LANDSCAPE MAINTENANCE RECOMMENDATIONS WITH A QUALIFIED WETLAND BIOLOGIST FROM THE PROJECT BIOLOGIST OR ECOLOGIST WHO IS FAMILIAR WITH THE STATED GOALS AND OBJECTIVES OF THE PROJECT PLAN.

B. MAINTENANCE ACTIVITIES: CONTRACTOR SHALL MAINTAIN TREES AND SHRUBS FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE IN ORDER TO MAINTAIN HEALTHY GROWTH AND HABITAT DIVERSITY. MAINTENANCE ACTIVITIES SHALL INCLUDE, BUT ARE NOT LIMITED TO: (A) REPLACING PLANTS DUE TO MORTALITY, (B) TIGHTENING AND REPAIRING TREE STAKES, (C) RESETTING PLANTS TO PROPER GRADES AND UPRIGHT POSITIONS, AND (D) CORRECTING DRAINAGE PROBLEMS AS REQUIRED.

C. IRRIGATION:

1. SYSTEM MAINTENANCE AND REPAIR: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACTIVATING, WINTERIZING, MAINTAINING, AND CONTINUALLY VERIFYING THE ADEQUATE OPERATION OF THE TEMPORARY IRRIGATION SYSTEM FOR THE FIRST GROWING SEASON FOLLOWING INSTALLATION. SYSTEM FUNCTION (INCLUDING ELECTRONIC VALVE AND CONTROLLER FUNCTION) SHALL BE INSPECTED FOR OPERATION AND FULL COVERAGE OF ALL PLANTED AREAS DURING EACH MAINTENANCE VISIT. THE SYSTEM SHALL BE REPAIRED IMMEDIATELY IF FOUND TO BE DAMAGED OR MALFUNCTIONING. SYSTEM SHALL BE PROGRAMMED AND MAINTAINED TO PROVIDE APPROXIMATELY ½ INCH OF WATER EVERY THREE DAYS.

D. STAKE AND TIE REMOVAL: CONTRACTOR SHALL REMOVE TREE STAKES AND TIES ONE YEAR AFTER INSTALLATION, UNLESS RECEIVING WRITTEN PERMISSION FROM THE PROJECT BIOLOGIST OR ECOLOGIST TO DELAY REMOVAL OF STAKES AND TIES

E. EROSION AND DRAINAGE: CONTRACTOR SHALL CORRECT EROSION AND DRAINAGE PROBLEMS AS REQUIRED.

F. IRRIGATION SYSTEM REMOVAL: CONTRACTOR SHALL REMOVE IRRIGATION SYSTEM APPROXIMATELY 2 YEARS AFTER PLANTING, OR AS APPROVED BY THE PROJECT BIOLOGIST OR ECOLOGIST.

G. FINAL MAINTENANCE INSPECTION AND APPROVAL: UPON COMPLETION OF THE ONE-YEAR MAINTENANCE PERIOD, AN INSPECTION BY THE PROJECT BIOLOGIST OR ECOLOGIST SHALL BE CONDUCTED TO CONFIRM THAT THE PROJECT AREA WAS PROPERLY MAINTAINED. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED AND SUBMITTED TO THE CONTRACTOR FOR CORRECTION. UPON CORRECTION OF THE PUNCH LIST ITEMS, THE PROJECT SHALL BE REVIEWED BY THE PROJECT BIOLOGIST OR ECOLOGIST FOR FINAL CLOSEOUT OF PLAN IMPLEMENTATION.

H. THE CONTRACTOR SHALL PROVIDE MANUAL WATERING TO ALL UNIRRIGATED MITIGATION PLANTINGS BETWEEN JUNE 15TH AND OCTOBER 15TH. SUPPLEMENTAL WATERING MAY ALSO BE REQUIRED IF HOT, DRY WEATHER OCCURS EITHER BEFORE OR AFTER THESE DATES. DURING THE FIRST YEAR AFTER INSTALLATION, PLANTINGS SHALL BE WATERED A MINIMUM OF ONE INCH PER WEEK. WATERING FREQUENCY MAY BE INCREASED AS NECESSARY DURING PROLONGED PERIODS OF HOT, DRY WEATHER TO PREVENT PLANT MORTALITY.

NOT FOR CONSTRUCTION

THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE:

SUBJECT TO REVISION

Know what's below. Call before you dig.

NOTES

1. SURVEY PROVIDED BY BUSH, ROED, & HITCHINGS INC., 2009 MINOR AVE E SEATTLE, WA 98102-3513, (206) 323-4144.
2. SITE PLAN PROVIDED BY KPFF, 1601 5TH AVE SUITE 1600 SEATTLE, WA 98101, (206) 622-5822.
3. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
4. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN MAY, 2021.

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PROJECT
HYLA CROSSING PUMPED STORMWATER DISCHARGE
ISSAQUAH, WA

OWNER
ROWLEY PROPERTIES
1595 NW GILMAN BLVD
ISSAQUAH WA, 98027

PROFESSIONAL SEAL

DESIGN TEAM	EP, AO
PRINCIPAL	BS
PROJECT MANAGER	EP
PROJECT ARCHITECT	EP
DRAWN BY	FH
CHECKED BY	EP

DRAWING SET DESCRIPTION
ASDP/SSDP/SV RESUBMITTAL

REVISIONS

No.	DATE	DESCRIPTION
1	10/3/2019	30% CD
2	4/1/2020	ASDP
3	4/12/2021	ASDP REVISION #1
4	9/8/2021	ASDP REVISION #2
5	4/12/2022	ASDP/SSDP/SV

SHEET TITLE
PLANTING SPECIFICATIONS

SHEET NUMBER
W4.0

ISSUE DATE
4/12/2021

PERFORMANCE MONITORING OBJECTIVES

PERFORMANCE MONITORING OBJECTIVES

FOR 10 YEARS AS REQUIRED BY US ARMY CORPS OF ENGINEERS

MITIGATION AREAS:

- WETLAND E RESTORATION: 28,776 SF
- WETLAND E BUFFER RESTORATION: 13,025 SF
- TIBBETTS CREEK BUFFER ENHANCEMENT: 34,341 SF

PERFORMANCE OBJECTIVES:

OBJECTIVE A: THE WETLAND E RESTORATION AREA MUST EXHIBIT WETLAND HYDROLOGY. WETLAND CONDITIONS WILL BE VERIFIED BY THE PRESENCE OF HYDROLOGIC INDICATORS.

PERFORMANCE STANDARD A1: AFTER CONSTRUCTION, THE RESTORED WETLAND AREAS SHALL EXHIBIT 14 OR MORE CONSECUTIVE DAYS OF PONDING OR A WATER TABLE 12 INCHES OR LESS BELOW THE SOIL SURFACE DURING THE GROWING SEASON IN EACH YEAR OF NORMAL RAINFALL. EVIDENCE OF WETLAND HYDROLOGY MAY INCLUDE EVIDENCE OF SATURATED SOIL CONDITIONS (I.E., SIGNS OF PONDING, A WATER TABLE NEAR THE SURFACE, WATER MARKS, WATER-STAINED LEAVES, OR OXIDIZED RHIZOSPHERES). IN ADDITION, A COMBINATION OF NATIVE OR NATURALIZED WOODY AND HERBACEOUS VEGETATION THAT IS PREDOMINANTLY FAC OR WETTER WILL COVER THE WETLAND AREAS. HYDROLOGY SHALL BE MONITORED, AT A MINIMUM, DURING YEARS 1, 2, 3, 5, 7, AND 10.

OBJECTIVE B: CREATE STRUCTURAL AND PLANT SPECIES DIVERSITY IN ALL OF THE MITIGATION AREAS.

PERFORMANCE STANDARD B1: PERCENT SURVIVAL OF ALL INSTALLED SPECIES MUST BE AT LEAST 100% AT THE END OF YEAR 1 (PER CONTACTOR WARRANTY), AND AT LEAST 80% AT THE END OF YEARS 2 AND 3. SURVIVAL WILL NOT BE TRACKED AFTER YEAR 3 UNLESS A CONTINGENCY MEASURE IS IMPLEMENTED THAT REQUIRES NEW PLANTINGS.

PERFORMANCE STANDARD B2: AT LEAST 8 SPECIES OF DESIRABLE NATIVE PLANT SPECIES WILL BE PRESENT IN THE WETLAND RESTORATION, BUFFER RESTORATION, AND BUFFER ENHANCEMENT AREAS. SPECIES MAY BE COMPRISED OF BOTH PLANTED AND NATURALLY COLONIZED VEGETATION.

PERFORMANCE STANDARD B3: COVERAGE OF HERBACEOUS VEGETATION WITHIN THE DESIGNATED AREAS WHERE NO WOODY VEGETATION HAS ALSO BEEN PLANTED SHALL BE AT LEAST 30% BY THE END OF YEAR 1, 50% BY THE END OF YEAR 5, AND 65% BY THE END OF YEARS 5, 7, AND 10. THIS PERFORMANCE STANDARD DOES NOT APPLY TO AREAS WHERE SHRUB OR FOREST IS THE TARGETED COVER TYPE.

PERFORMANCE STANDARD B4: TOTAL PERCENT AREAL WOODY PLANT COVERAGE MUST BE AT LEAST 35% BY THE END OF YEAR 4, 50% BY THE END OF YEAR 5, 55% BY THE END OF YEAR 7, AND 65% BY THE END OF YEAR 10. THIS PERFORMANCE STANDARD ONLY APPLIES WHERE WOODY SPECIES ARE PROPOSED FOR PLANTING.

WOODY PLANT COVERAGE MAY BE COMPRISED OF BOTH PLANTED AND RECOLONIZED NATIVE SPECIES; HOWEVER, AT NO TIME DURING THE MONITORING PERIOD SHALL A RECOLONIZED NATIVE SPECIES (E.G., RED ALDER) COMPRISE MORE THAN 35% OF THE TOTAL WOODY PLANT COVER IN THIS COMMUNITY.

OBJECTIVE C: REMOVE AND CONTROL INVASIVE PLANTS TO LESS THAN 10% COVER IN MITIGATION AREAS.

PERFORMANCE STANDARD C1: AFTER CONSTRUCTION AND THROUGHOUT THE 10-YEAR CORPS MONITORING PERIOD, AREAL COVERAGE BY NON-NATIVE INVASIVE PLANT SPECIES SHALL BE MAINTAINED AT 10% OR LESS THROUGHOUT THE MITIGATION SITE. THESE STANDARDS APPLY TO DITCH, RIPARIAN, AND UPLAND BUFFER AREAS COMBINED. THESE SPECIES INCLUDE, BUT ARE NOT LIMITED TO: SCOT'S BROOM, HIMALAYAN AND EVERGREEN BLACKBERRY, PURPLE LOOSESTRIFE, HEDGE BINDWEED, AND BITTERSWEET NIGHTSHADE.

PERFORMANCE STANDARD C2: PER CORPS REQUIREMENTS, AFTER CONSTRUCTION AND THROUGHOUT THE 10-YEAR CORPS MONITORING PERIOD, NON-NATIVE INVASIVE KNOTWEED SPECIES (SUCH AS POLYGONUM CUSPIDATUM, P. POLYSTACHYUM, P. SACHALINENSE, AND P. BOHEMICUM) WILL BE ERADICATED THROUGHOUT THE MITIGATION AREAS (INCLUDING BUFFER AREAS) FOR A TOTAL COVER OF 0%.

MONITORING SCHEDULE

PERFORMANCE MONITORING OF THE MITIGATION AREAS WILL BE CONDUCTED ACCORDING TO ALL APPLICABLE CODE/REGULATORY REQUIREMENTS AND PERMIT CONDITIONS. MONITORING WILL BE CONDUCTED IN ACCORDANCE WITH IMC 18.10.500 FOR A MINIMUM OF FIVE (5) YEARS FOR THE CITY OF ISSAQUAH (CITY) AND 10 YEARS FOR THE ARMY CORPS OF ENGINEERS (CORPS). MONITORING WILL BE CONDUCTED ACCORDING TO THE SCHEDULE PRESENTED BELOW, AND WILL BE PERFORMED BY A QUALIFIED BIOLOGIST OR ECOLOGIST FROM TALASAEA CONSULTANTS, INC.

PROJECTED SCHEDULE FOR PERFORMANCE MONITORING AND MAINTENANCE EVENTS

YEAR	DATE	MAINTENANCE REVIEW	PERFORMANCE MONITORING	REPORT DUE TO AGENCIES
YEAR 0, AS-BUILT AND BASELINE ASSESSMENT	FALL	X	X	X
1	SPRING	X	X	
	FALL	X	X	X
2	SPRING	X	X	
	FALL	X	X	X
3	SPRING	X		
	FALL	X	X	X
4	SPRING	X		
	FALL	X	X	
5	SPRING	X		
	FALL	X	X	X*
6	SPRING	X		
	FALL			
7	SPRING	X		
	FALL		X	X*
8	SPRING	X		
	FALL			
9	SPRING	X		
	FALL			
10	SPRING	X		
	FALL	X	X	X**

- * OBTAIN FINAL APPROVAL TO FACILITATE BOND RELEASE FROM THE CITY (PRESUMES PERFORMANCE CRITERIA AREA MET).
- ** OBTAIN FINAL APPROVAL FROM CORPS (PRESUMES PERFORMANCE CRITERIA ARE MET).

MONITORING REPORT WILL INCLUDE:

1) PROJECT OVERVIEW

2) MITIGATION PERFORMANCE STANDARDS SUMMARY

3) SUMMARY DATA, INCLUDING DATE OF INSPECTION, LOCATION, DATE PLANTING WAS COMPLETED, BRIEF NARRATIVE ADDRESSING CONTEXT OF WATERBODIES AND LAND USE, METHODS OF EVALUATION, YEAR NUMBER OF THE REQUIRED 10 YEARS.

4) MAPS, PLANS AND PHOTOS TO SUPPORT SUMMARY DATA; PHOTOGRAPHS WILL BE FROM ESTABLISHED PHOTO POINTS FROM TIME OF COMPLETED INSTALLATION.

5) CONCLUSIONS: A GENERAL STATEMENT DESCRIBING WHETHER THE PERFORMANCE STANDARDS ARE BEING MET AND A BRIEF EXPLANATION IF THEY ARE NOT BEING MET, WITH REMEDIAL ACTIONS BEING TAKEN.

IF THE PERFORMANCE CRITERIA ARE MET, MONITORING FOR THE CITY WILL CEASE AT THE END OF YEAR FIVE, UNLESS OBJECTIVES ARE MET AT AN EARLIER DATE AND THE CITY ACCEPTS THE MITIGATION PROJECT AS SUCCESSFULLY COMPLETED.

MONITORING METHODS

VEGETATION MONITORING METHODS MAY INCLUDE COUNTS; PHOTO-POINTS; RANDOM SAMPLING; SAMPLING PLOTS, QUADRATS, OR TRANSECTS; STEM DENSITY; VISUAL INSPECTION; AND/OR OTHER METHODS DEEMED APPROPRIATE BY THE CITY AND THE BIOLOGIST/ECOLOGIST. VEGETATION MONITORING COMPONENTS SHALL INCLUDE GENERAL APPEARANCE, HEALTH, MORTALITY, COLONIZATION RATES, PERCENT COVER, PERCENT SURVIVAL, VOLUNTEER PLANT SPECIES, AND INVASIVE WEED COVER.

PERMANENT VEGETATION SAMPLING PLOTS, QUADRATS, AND/OR TRANSECTS WILL BE ESTABLISHED AT SELECTED LOCATIONS TO ADEQUATELY SAMPLE AND REPRESENT ALL OF THE PLANT COMMUNITIES WITHIN THE MITIGATION PROJECT AREAS. THE NUMBER, EXACT SIZE, AND LOCATION OF TRANSECTS, SAMPLING PLOTS, AND QUADRATS WILL BE DETERMINED AT THE TIME OF THE BASELINE ASSESSMENT.

PERCENT AREA COVER OF WOODY VEGETATION (FORESTED AND/OR SCRUB-SHRUB PLANT COMMUNITIES) WILL BE EVALUATED THROUGH THE USE OF POINT-INTERCEPT SAMPLING METHODOLOGY. USING THIS METHODOLOGY, A TAPE WILL BE EXTENDED BETWEEN TWO PERMANENT MARKERS AT EACH END OF AN ESTABLISHED TRANSECT. TREES AND SHRUBS INTERCEPTED BY THE TAPE WILL BE IDENTIFIED, AND THE INTERCEPT DISTANCE RECORDED. PERCENT COVER BY SPECIES WILL THEN BE CALCULATED BY ADDING THE INTERCEPT DISTANCES AND EXPRESSING THEM AS A TOTAL PROPORTION OF THE TAPE LENGTH.

THE ESTABLISHED VEGETATION SAMPLING LOCATIONS WILL BE MONITORED AND COMPARED TO THE BASELINE DATA DURING EACH PERFORMANCE MONITORING EVENT TO AID IN DETERMINING THE SUCCESS OF PLANT ESTABLISHMENT. PERCENT SURVIVAL OF SHRUBS AND TREES WILL BE EVALUATED IN A 10-FOOT-WIDE STRIP ALONG EACH ESTABLISHED TRANSECT. THE SPECIES AND LOCATION OF ALL SHRUBS AND TREES WITHIN THIS AREA WILL BE RECORDED AT THE TIME OF THE BASELINE ASSESSMENT AND WILL BE EVALUATED DURING EACH MONITORING EVENT TO DETERMINE PERCENT SURVIVAL.

- PHOTO DOCUMENTATION
  LOCATIONS WILL BE ESTABLISHED WITHIN THE MITIGATION AREAS FROM WHICH PANORAMIC PHOTOGRAPHS WILL BE TAKEN THROUGHOUT THE MONITORING PERIOD. THESE PHOTOGRAPHS WILL DOCUMENT GENERAL APPEARANCE AND RELATIVE CHANGES WITHIN THE PLANT COMMUNITIES. A REVIEW OF PHOTOS OVER TIME WILL PROVIDE A SEMI-QUANTITATIVE REPRESENTATION OF THE SUCCESS OF THE PLANTING PLAN. VEGETATION SAMPLING PLOTS AND PHOTO-POINT LOCATIONS WILL BE SHOWN ON A MAP AND SUBMITTED WITH THE BASELINE ASSESSMENT REPORT AND YEARLY PERFORMANCE MONITORING REPORTS.
- WATER QUALITY AND SITE STABILITY
  WATER QUALITY WILL BE ASSESSED QUALITATIVELY UNLESS IT IS EVIDENT THAT THERE IS A SERIOUS PROBLEM. IN SUCH AN EVENT, WATER QUALITY SAMPLES WILL BE TAKEN AND ANALYZED IN A LABORATORY FOR SUSPECTED PARAMETERS. QUALITATIVE ASSESSMENTS OF WATER QUALITY INCLUDE:
- OIL SHEEN OR OTHER SURFACE FILMS,
- ABNORMAL COLOR OR ODOR OF WATER,
- STRESSED OR DEAD VEGETATION OR AQUATIC FAUNA,
- TURBIDITY, AND
- ABSENCE OF AQUATIC FAUNA.
  OBSERVATIONS WILL BE MADE OF THE GENERAL STABILITY OF SOILS IN THE MITIGATION AREAS DURING EACH MONITORING EVENT. ANY EROSION OF SOILS OR SOIL SLUMPING WILL BE RECORDED AND CORRECTIVE MEASURES WILL BE TAKEN.

NOT FOR CONSTRUCTION

THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE:

SUBJECT TO REVISION

811 Know what's below. Call before you dig.

NOTES

1. SURVEY PROVIDED BY BUSH, ROED, & HITCHINGS INC., 2009 MINOR AVE E SEATTLE, WA 98102-3513, (206) 323-4144.
2. SITE PLAN PROVIDED BY KPFF, 1601 5TH AVE SUITE 1600 SEATTLE, WA 98101 , (206) 622-5822.
3. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
4. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN MAY, 2021.

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

CONSULTANT
TALASAEA CONSULTANTS, INC.
Resource and Environmental Planning
15020 Bear Creek Road Northeast
Woodinville, Washington 98077
Bus (425) 861-7550 - Fax (425) 861-7549

PROJECT
HYLA CROSSING PUMPED STORMWATER DISCHARGE

ISSAQUAH, WA

OWNER
ROWLEY PROPERTIES
1595 NW GILMAN BLVD
ISSAQUAH WA, 98027

PROFESSIONAL SEAL

DESIGN TEAM: EP, AO
PRINCIPAL: BS
PROJECT MANAGER: EP
PROJECT ARCHITECT: EP
DRAWN BY: FH
CHECKED BY: EP

DRAWING SET DESCRIPTION
ASDP/SSDP/SV RESUBMITTAL

REVISIONS

No.	DATE	DESCRIPTION
1	10/3/2019	**30% CD**
2	4/1/2020	**ASDP**
3	4/12/2021	**ASDP REVISION #1**
4	9/8/2021	**ASDP REVISION #2**
5	4/12/2022	**ASDP/SSDP/SV**

SHEET TITLE
PERFORMANCE MONITORING OBJECTIVES

SHEET NUMBER
W5.0

ISSUE DATE
4/12/2021

Apr 12, 2022 - 5:19pm thuynh Z:\DRAWING\1700-1799\TAL1775\Plans\TAL-1775 MP 2022-04.dwg
Xref Filename: \ XS-SUR-16 \ x-hcpsd-sv \ X-HCPSD-CON-STG \ x-hcpsd-sd PF \ X-HCPSD-SP \ x-hcpsd-sp-fat \ X-HCPSD-UT \ X-RPW-BLDG \ X-RPW-SD \ X-RPW-SP \ X-RPW-UT \ x-hcpsd-HCPSD-TILB-24X36 \ X-HCPSD-CONTOURS \ x-hcpsd-sd \ chase \ 1775 - EWF Detail \ DNH AREA \

ATTACHMENT 3

Bond Quantity Worksheet

King County
Department of Permitting
Environmental Review
35030 SE Douglas Str, Suite 210
Snoqualmie, WA 98065-9266
206-296-6600 TTY Relay: 711

Critical Areas Mitigation
Bond Quantity Worksheet

C24 09/09/2015
ls-wks-sensareaBQ.xls
ls-wks-sensareaBQ.pdf

Project Name: Hyla Crossing **Date:** 15-Apr-22 **Prepared by:** Wet.land, LLC

Project Number: **Project Description: Restoration of Temporary impacts**

Location: Issaquah **Applicant:** **Phone:**

PLANT MATERIALS (includes labor cost for plant installation)

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	$5.00	Each	7455.00		$ 37,275.00
PLANTS: Container, 1 gallon, medium soil	$11.50	Each	1345.00		$ 15,467.50
PLANTS: Container, 2 gallon, medium soil	$20.00	Each	422.00		$ 8,440.00
PLANTS: Container, 5 gallon, medium soil	$36.00	Each			$ -
PLANTS: Seeding, by hand	$0.50	SY			$ -
PLANTS: Slips (willow, red-osier)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each	1723.00		$ 3,446.00
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Flats/plugs	$2.00	Each			$ -
				TOTAL	**$ 64,628.50**

INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)

Type	Unit Price	Unit			Cost
Compost, vegetable, delivered and spread	$37.88	CY	90.00	3" compost	$ 3,409.20
Decompacting till/hardpan, medium, to 6" depth	$1.57	CY			$ -
Decompacting till/hardpan, medium, to 12" depth	$1.57	CY			$ -
Hydroseeding	$0.51	SY			$ -
Labor, general (landscaping other than plant installation)	$40.00	HR			$ -
Labor, general (construction)	$40.00	HR			$ -
Labor: Consultant, supervising	$55.00	HR			$ -
Labor: Consultant, on-site re-design	$95.00	HR			$ -
Rental of decompacting machinery & operator	$70.00	HR			$ -
Sand, coarse builder's, delivered and spread	$42.00	CY			$ -
Staking material (set per tree)	$7.00	Each	112.00		$ 784.00
Surveying, line & grade	$250.00	HR			$ -
Surveying, topographical	$250.00	HR			$ -
Watering, 1" of water, 50' soaker hose	$3.62	MSF			$ -
Irrigation - temporary	$3,000.00	Acre	1.56		$ 4,680.00
Irrigation - buried	$4,500.00	Acre			$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	$1.02	SY			$ -
				TOTAL	**$ 8,873.20**

HABITAT STRUCTURES*

ITEMS	Unit Cost	Unit			Cost
Fascines (willow)	$ 2.00	Each			$ -
Logs, (cedar), w/ root wads, 16"-24" diam., 30' long	$1,000.00	Each			$ -
Logs (cedar) w/o root wads, 16"-24" diam., 30'	$400.00	Each			$ -
Logs, w/o root wads, 16"-24" diam., 30' long	$245.00	Each			$ -
Logs w/ root wads, 16"-24" diam., 30' long	$460.00	Each			$ -
Rocks, one-man	$60.00	Each			$ -
Rocks, two-man	$120.00	Each			$ -
Root wads	$163.00	Each			$ -
Spawning gravel, type A	$22.00	CY			$ -
Weir - log	$1,500.00	Each			$ -
Weir - adjustable	$2,000.00	Each			$ -
Woody debris, large	$163.00	Each			$ -
Snags - anchored	$400.00	Each			$ -
Snags - on site	$50.00	Each			$ -
Snags - imported	$800.00	Each			$ -
* All costs include delivery and installation				*TOTAL*	**$ -**

EROSION CONTROL

ITEMS	Unit Cost	Unit			Cost
Backfill and Compaction-embankment	$ 4.89	CY			$ -
Crushed surfacing, 1 1/4" minus	$30.00	CY			$ -
Ditching	$7.03	CY			$ -
Excavation, bulk	$4.00	CY			$ -
Fence, silt	$1.60	LF			$ -
Jute Mesh	$1.26	SY			$ -
Mulch, by hand, straw, 2" deep	$1.27	SY			$ -
Mulch, by hand, wood chips, 2" deep	$3.25	SY	39179.00		$ 127,331.75
Mulch, by machine, straw, 1" deep	$0.32	SY			$ -
Piping, temporary, CPP, 6"	$9.30	LF			$ -
Piping, temporary, CPP, 8"	$14.00	LF			$ -
Piping, temporary, CPP, 12"	$18.00	LF			$ -
Plastic covering, 6mm thick, sandbagged	$2.00	SY			$ -
Rip Rap, machine placed, slopes	$33.98	CY			$ -
Rock Constr. Entrance 100'x15'x1'	$3,000.00	Each			$ -
Rock Constr. Entrance 50'x15'x1'	$1,500.00	Each			$ -
Sediment pond riser assembly	$1,695.11	Each			$ -
Sediment trap, 5' high berm	$15.57	LF			$ -
Sediment trap, 5' high berm w/spillway incl. riprap	$59.60	LF			$ -
Sodding, 1" deep, level ground	$5.24	SY			$ -
Sodding, 1" deep, sloped ground	$6.48	SY			$ -
Straw bales, place and remove	$600.00	TON			$ -
Hauling and disposal	$20.00	CY			$ -
Topsoil, delivered and spread	$35.73	CY	479.00		$ 17,114.67
				TOTAL	**$ 144,446.42**

GENERAL ITEMS

ITEMS	Unit Cost	Unit			Cost
Fencing, chain link, 6' high	$18.89	LF			$ -
Fencing, chain link, corner posts	$111.17	Each			$ -
Fencing, chain link, gate	$277.63	Each			$ -
Fencing, split rail, 3' high (2-rail)	$10.54	LF	902.00	100x97; perimeter	$ 9,507.08
Fencing, temporary (NGPE)	$1.20	LF			$ -
Signs, sensitive area boundary (inc. backing, post, install)	$28.50	Each	9.00	1 per 50'	$ 256.50
				TOTAL	**$ 9,763.58**

OTHER

				(Construction Cost Subtotal)	**$ 227,711.70**
ITEMS	Percentage of Construction Cost	Unit			Cost
Mobilization	10%	1			$ 22,771.17
Contingency	30%	1			$ 68,313.51
				TOTAL	**$ 91,084.68**

MAINTENANCE AND MONITORING

NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintance ranges may be assessed anywhere from 5 to 10 years.

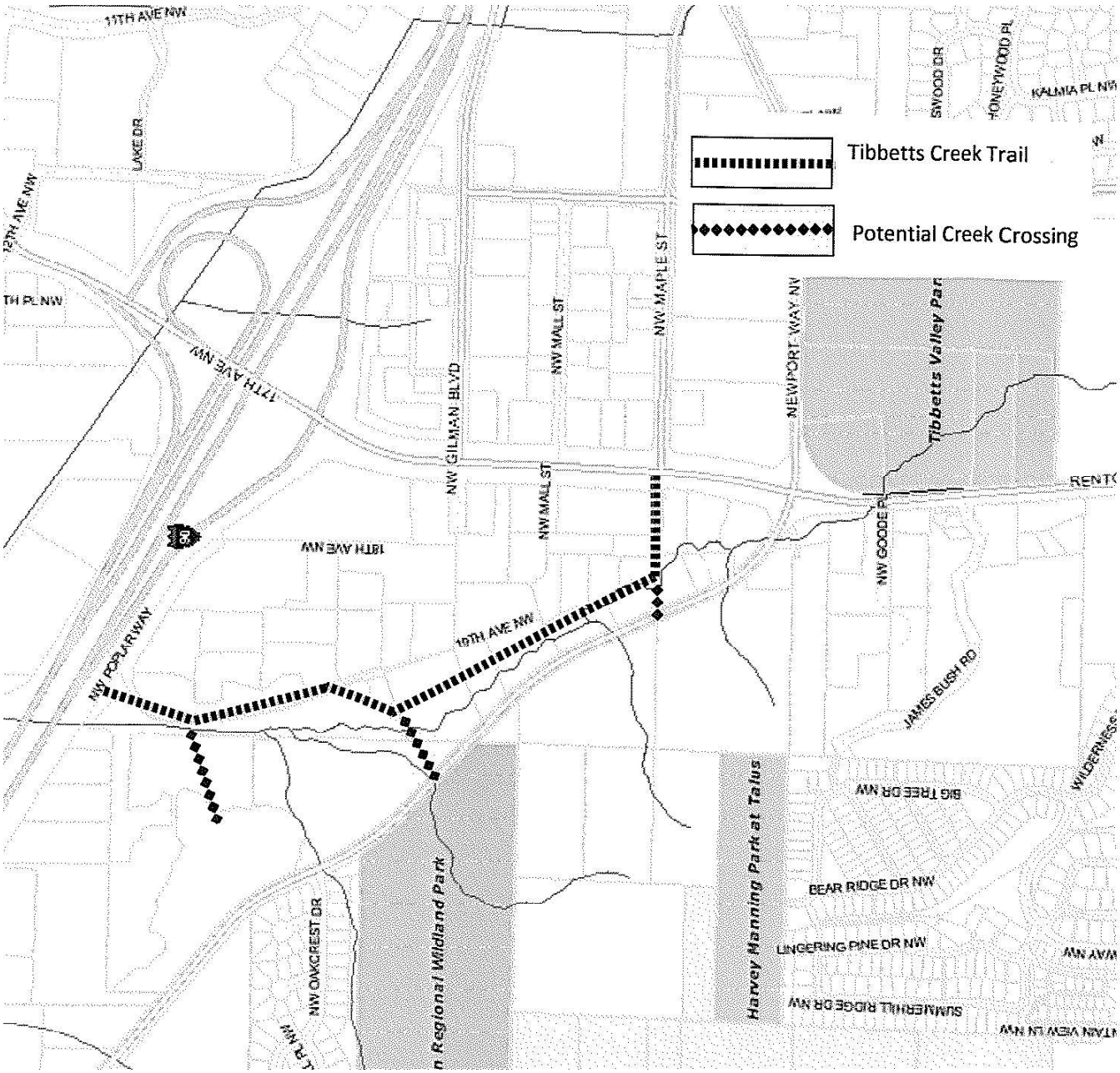
Maintenance, annual (by owner or consultant)					
Less than 1,000 sq.ft. and buffer mitigation only	$ 1.08	SF		(3 X SF total for 3 annual events; Includes monitoring)	$ -
Less than 1,000 sq.ft. with wetland or aquatic area mitigation	$ 1.35	SF		(3 X SF total for 3 annual events; Includes monitoring)	$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of buffer mitigation	$ 180.00	EACH		(4hr @$45/hr)	$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of wetland or aquatic area mitigation	$ 270.00	EACH		(6hr @$45/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre -buffer mitigation only	$ 360.00	EACH		(8 hrs @ 45/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area mitigation	$ 450.00	EACH		(10 hrs @ $45/hr)	$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	$ 1,600.00	DAY	20.00	(WEC crew)	$ 32,000.00
Larger than 5 acres - buffer and / or wetland or aquatic area mitigation	$ 2,000.00	DAY		(1.25 X WEC crew)	$ -
Monitoring, annual (by owner or consultant)					
Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation	$ 720.00	EACH		(8 hrs @ 90/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts	$ 900.00	EACH		(10 hrs @ $90/hr)	$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	$ 1,440.00	DAY	20.00	(16 hrs @ $90/hr)	$ 28,800.00
Larger than5 acres - buffer and / or wetland or aquatic area impacts	$ 2,160.00	DAY		(24 hrs @ $90/hr)	$ -
				TOTAL	**$ 60,800.00**

Total	**$379,596.38**

ATTACHMENT 4

Exhibit D-2, Section 3.0, Appendix D *Community Spaces* of the DA

Exhibit D-2 – Tibbetts Creek Trail



Note: the Tibbetts Creek Trail is envisioned to be a combination of Multi-Use Trail (Appendix E, Section 5.3) and Critical Area Trail (Appendix E, Section 5.1). The exact design of the trail will be determined through the permitting of the facilities. Of the three Potential Creek Crossings, at least one crossing will be a connection to Newport and allow for bicycles as described in Appendix D, Section 3.B. The other potential crossings are at the Master Developer's discretion.

ATTACHMENT 5

Section 5.1 of Appendix E *Circulation Standards* of the DA

5.1 Critical Areas Trail

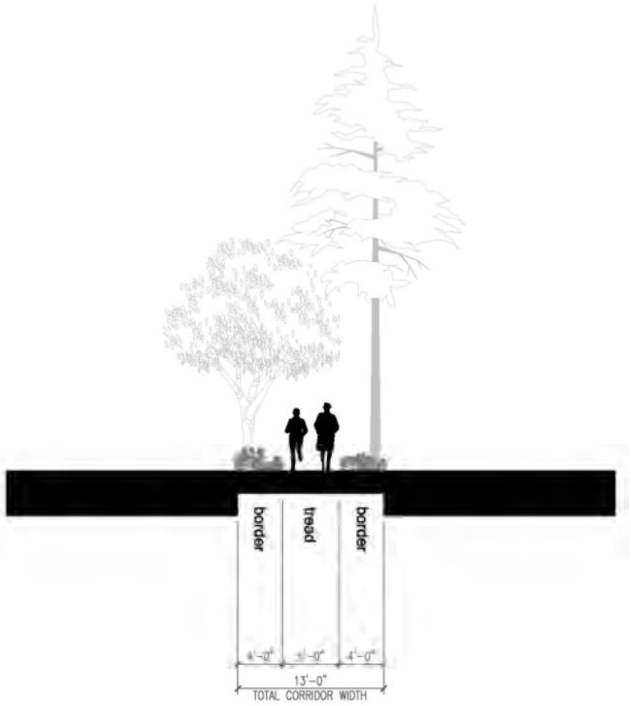
Desired Function:

Pedestrian	High	**Bicycle**	None	**Building Main Entry**	None
Vehicle	None	**Fire**	None	**Transit**	None
Freight	None	**Service**	None		

Facility	Corridor Width *	Sidewalk / Tread Width	Vehicular Pavement Width	Number of Lanes	Bike Lane	On-street Parking	Land-scape	Comments
Critical Areas Trail	13 ft	5 ft	None	NA	None	No	4 ft border ea. side	Border compatible with existing buffer vegetation.

* Note: Corridor Width is the total sum of the elements. The dimensions of the elements shall not be increased or decreased except with the approval of the Designated Official and the Designated Official will determined if an Administrative Modification is necessary. Only pedestrian, bicycle or landscape elements should be increased.

Critical Area Trails are non-motorized trails used in Critical Area Buffers and provide connectivity, recreational, educational opportunities. The tread anticipates a trail that will have a high level of pedestrian use, but it is too narrow for bicycle use. The primarily soft surface trail offers controlled access to critical areas. In addition, overlooks and similar gathering spots may be provided to accommodate vistas and other unique opportunities.



Critical Areas Trail